THE RUBBER AGE AND TIRE NEWS

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5-18

THE
RUBBER AGE
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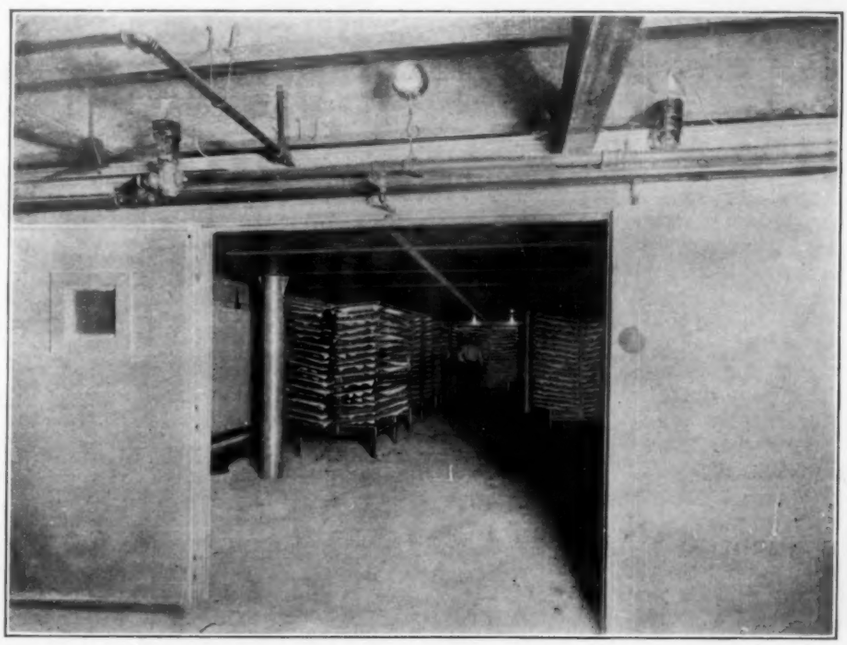
The Hunter Patent Process

The drying of crude and reclaimed rubber and of the various compounding materials is one of the most important processes in the manufacture of rubber goods. The latest successful development in drying for rubber manufacture is what is known as the Hunter patent process, or Hunter Dry Kiln process, one of the greatest advantages of which is that any number of different varieties of crude rubber may be dried at the same time in the same kiln with the various compounding materials without reducing the individual efficiency of any of the rubbers or materials.

The Hunter patent process differs from other drying methods employed in the rubber industry in that it dries materials from the inside out, a feature which in the case of rubber itself is particularly important for it keeps the surface of the stock perfectly plastic and allows it to retain a uniform flexibility after drying. In other words with this system the surface of the stock is not oxidized during the drying and the rubber is processed while it is being dried.

Manufacturers using the Hunter dry kiln process say that the tensile strength of the rubber dried in it is increased and that the crude stock can be broken down in from 25 to 50 per cent less time than is usually required. It is further stated that plantation rubber or rubber that has no moisture content when treated by the Hunter patent process acquires an increased tensile strength and thereafter can be broken down at a great saving of time.

The Hunter patent process is the invention of Harry Hunter of Indianapolis, Ind., and it is covered by special patents which are separate and distinct from those covering the Hunter dry kiln, through the use of which the Hunter process is made possible.



ENTRANCE AND INTERIOR VIEW OF A HUNTER DRY KILN

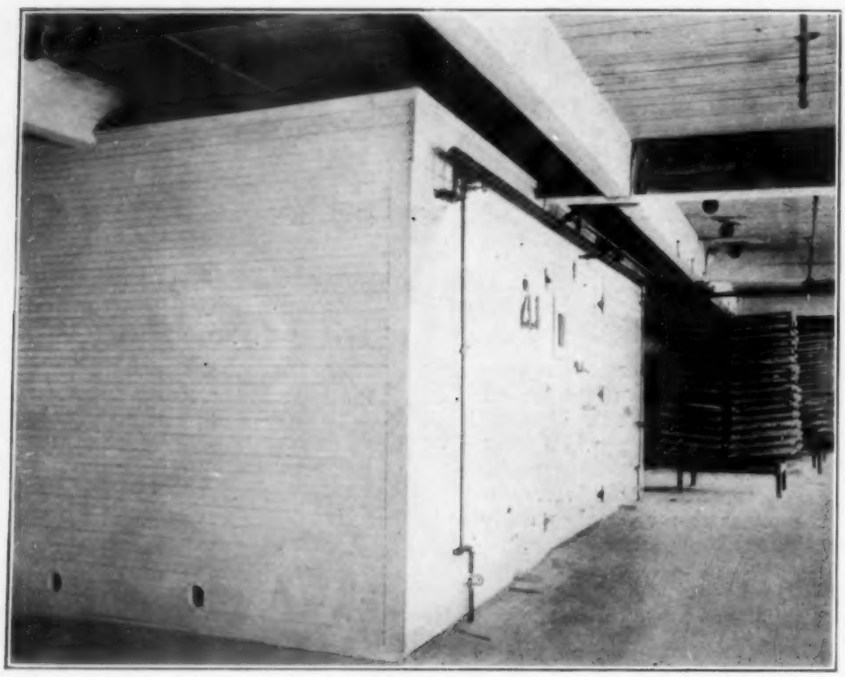
Approximates Nature's Method

It being generally conceded that materials dried by Nature's method are best, Mr. Hunter directed his efforts to perfect a system that would bring together the best conditions of Nature, but which would control and intensify them and eliminate the unavoidable interruptions to which Nature's process is subject and which make it impractical under modern manufacturing conditions.

The Hunter system is one of forced drying, but differs from the old type hot air loft in that the proper amount of humidity and temperature is introduced to best insure results. It is really a "sweating out" process and the conditions maintained in the kiln are such as to prevent surface hardening.

The Hunter Dry Kiln unit is a solidly built structure into which no air is allowed to enter while in operation except air that has been thoroughly conditioned. Atmospheric air passes through a series of intake pipes, which are plainly visible in one of the accompanying photographs, and are arranged along the base of the structure. The air entering through these pipes passes into a radiation chamber which is a separate compartment from the drying chamber proper. Here the air is heated and caused to pass over an exposed surface of water from which it becomes humidified to the desired degree before it is allowed to enter the room in which are placed the mate-

rials to be treated. Thus drying is made absolutely independent of outside atmospheric conditions, and the air can be taken from outside the factory in zero weather, or from indoors, as most convenient. The circulation is uniform throughout the drying chamber, there being no dead spots. As the heated air cools and absorbs moisture from the materials, it naturally falls to the floor of the drying room whence it escapes through a series of exhaust pipes arranged on the floor line and connected with a stack leading to the outside atmosphere. The same air is used only once, a fresh supply being constantly introduced. The peculiar construction of the kiln produces a forced draft, which insures a rapid circulation without the use of either fans or blowers, which is another important advantage of the system, for it not only does away with the cost for power but also eliminates the annoyances and cost of up-keep that necessarily go with the use of mechanical means for forcing air circulation.



A Hunter Dry Kiln Showing Air Intakes

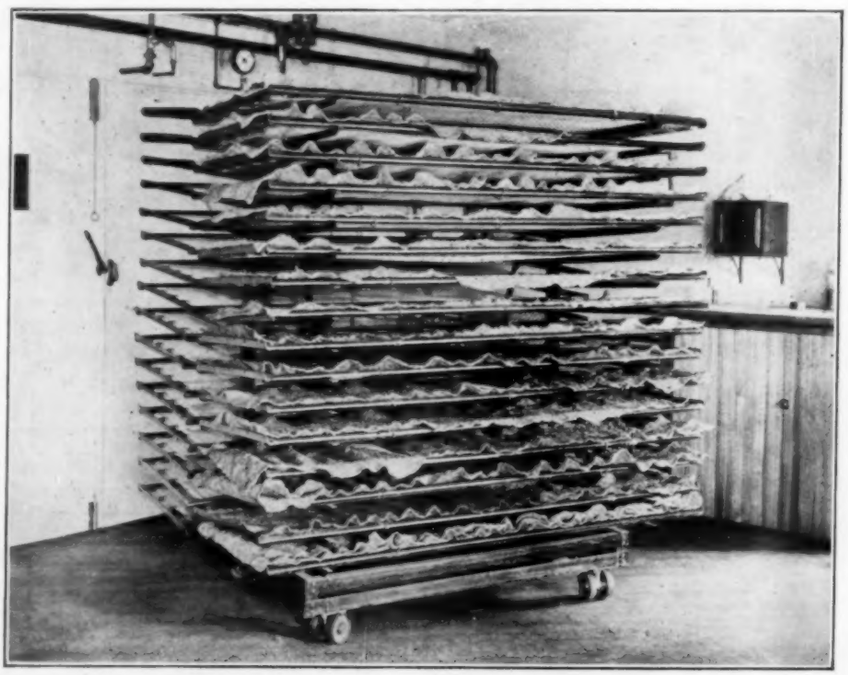
The Hunter system is extremely economical in its steam consumption, each heat unit being made to pick up its full load before passing out of the drying chamber, additional steam being taken in only as required. The whole construction of the unit is such as to avoid depreciation and reduce up-keep costs to a minimum.

Method of Operation

To put a unit into operation it is only necessary to turn on the steam and set the automatic controls. The rest is done automatically without any outside care. Close attention is not necessary, for it is practically impossible to over-treat the stock, the system being fool-proof. After the time required for drying any particular form has elapsed the stock is not injuriously affected by further application of the treatment. Once the desired characteristics are created, they are retained permanently by the stock even though it be subjected indefinitely to the process.

If more than one kind of material is being treated at the same time, one drying quicker than the other, it is not necessary to remove the material that is first finished. It can be left in the kiln with absolute safety until all the materials in the kiln have been thoroughly dried. For example: Should crude rubber stock requiring twelve hours of drying be placed in the same kiln with rubber requiring twenty-four hours of treatment, it is perfectly safe to allow the twelve hour rubber to remain in the kiln until the twenty-four hour rubber is ready to be removed, there being no danger whatever of injuring the twelve hour stock. It is stated in this connection that a rubber factory using the Hunter patent process in regular production went so far as to leave twenty-four-hour stock in a kiln for twenty-seven days, making a test each day, and at the end of that time found that the rubber had retained the same characteristics it possessed at the end of the first twenty-four-hour period.

The rubber to be dried is placed on trays, which in turn are loaded on racks. Standard sized units, such as are shown in the accompanying photographs, accommodate fifteen racks, each rack carrying thirty-two trays. As before stated, various kinds of rubber can be treated at the same time, and the unit may be entered at any time and the materials inspected. Compounding materials can be placed in the kiln along with rubber and dried in their original package. The racks used for carrying the trays of rubber are of special construction de-



Rack and Trays with Rubber Ready for Kiln

signed to be strong and durable and at the same time easy to load and unload.

Machinery for Reclaimed Stock

The Hunter Dry Kiln Co. is preparing special machinery for handling reclaimed rubber. This machinery will do away with the handling of the rubber on screens, which requires a large amount of labor for stirring up the stock.

EXAMINING RUBBER IN THE HUNTER LABORATORY

The Hunter patent process is easily and quickly installed in any rubber factory without interfering with the regular production and without disturbing the fundamental manufacturing program. No special machinery is required either for the installation or operating the units, and kilns can be built to fit any convenient space and can be installed at any location in the factory.

Maintain Laboratories

Though in the brief period of two years Hunter dry kilns have been installed in the factories of practically all of the leading rubber companies, it has been difficult for some manufacturers to reconcile Mr. Hunter's claim that his process acts in a beneficial way upon the tensile strength of the rubber and at the same time produces a condition which makes it possible to break down the stock with a marked saving of time. To convince these manufacturers the Hunter Dry Kiln Co. has installed complete rubber laboratories at its headquarters, Twenty-sixth and Cornell Avenues, Indianapolis, Ind. These laboratories are every day demonstrating the efficiency of the Hunter patent process, and rubber manufacturers can send to them practical working samples up to 500 or 1000 lb. for treatment without expense or obligation on their part. The batches sent to the Hunter laboratories are dried and promptly returned to the manufacturers who can thus make comparisons of the batches dried by the Hunter process and the method they themselves are using.

The Rubber Age Trade Information Exchange

Inquiries on any rubber trade subject are solicited. Answers in many cases are sent by mail; others are printed below. Address all inquiries to Rubber Age Trade Information Exchange, 120 West 32d Street, New York.

Rubber Compounding Formulas

Inquiry No. 40.—Have you, or anyone else published a reliable book giving complete compounding formulas for rubber manufactures such as tire casings and inner tubes?

Answer.—To our knowledge no such book has ever been published. The RUBBER AGE AND TIRE NEWS has published compounds for certain rubber goods, but none for tire and tube stock. We may publish formulas for compounds of this kind, but in the meantime we would advise you to get in touch with experienced men like Wilmer Dunbar, Rubber Consulting Engineer, Greensburg, Pa. and Dr. Frederick J. Maywald, 133 Water Street, New York City. Either of these gentlemen can supply you with the information you want.

Wants Solid Tire Agency

Inquiry No. 41.—We are readers and subscribers to THE RUBBER AGE AND TIRE NEWS, and wish to add a good line of solid rubber tires to the line of pneumatic tires we are handling as wholesale and retail distributors in our city and in surrounding territory. Will you kindly supply us with a list of manufacturers of solid rubber tires?

Answer.—We are pleased to give you the following list of manufacturers of solid rubber tires: The Simplex Rubber Co. of America, Batavia, N. Y.; Braender Tire & Rubber Co., Rutherford, N. J.; Firestone Tire & Rubber Co., Akron, Ohio; Fisk Rubber Co., Chicopee Falls, Mass.; The N. F. Goodrich Co., Akron, Ohio; Goodyear Tire & Rubber Co., Akron, Ohio; Gillette Rubber Co., Eau Claire, Wis.; Hood Tire Co., Watertown, Mass.; Indian Tire & Rubber Co., New Brunswick, N. J.; Kelly-Springfield Tire Co., Seventh Avenue at 57th Street, New York City; Lion Tire & Rubber Corp., Lafayette, Ind.; McGraw Tire & Rubber Co., East Palestine, Ohio; Mason Tire & Rubber Co., Kent, Ohio; Polack Tire & Rubber Co., 1876 Broadway, New York City; Republic Rubber Co., Youngstown, Ohio; Rubber Insulated Metals Corp., Plainfield, N. J.; Swinehart Tire & Rubber Co., Akron, Ohio; United States Tire Co., 1790 Broadway, New York City.

Want Tire Rebuilding Equipment

Inquiry No. 42.—We do a large business in tire reliners, outer boots, inner shoes and cementless patches, and are desirous of obtaining the names and addresses of concerns manufacturing outfits for rebuilding old tires, moulds with steam generating jackets, and moulds for curing tires.

Answer.—You can obtain the equipment you desire from the following concerns: The Biggs Boiler Works Co., Akron, Ohio; C. D. Hibbs Rubber Co., Fort Worth, Tex.; the Williams Foundry & Machine Co., Akron, Ohio; the C. A. Shaler Co., Waupun, Wis.; the Arthur Vulcanizing Machine Co., Warren, Ohio; Chas. E. Miller, Anderson, Ind.; the Landis Machine Co., 1515 N. 25th Street, St. Louis, Mo.; the Akron Mold & Machine Co., Akron, Ohio; the Haywood Tire & Equipment Co., 530 N. Capitol Avenue, Indianapolis, Ind. The Biggs Boiler Works Co., Akron, Ohio; the C. D. Hibbs Rubber Co., Fort Worth, Tex., and the Williams Foundry & Machine Co., Akron, Ohio, specialize in tire retreading equipment.

Wants Compounds for Rubber Cements

Inquiry No. 43.—We are manufacturers of hair cloth and interested readers of THE RUBBER AGE AND TIRE NEWS. We wish to obtain information as to the best ingredient or ingredients to add to rubber in making cement to cause the rubber to vulcanize rapidly at moderate heat and to cure it to the extent that it will not readily dissolve when brought into contact with gasoline or benzine. We would like to have all available information regarding rubber cement, particularly the quick curing kinds.

Answer.—The RUBBER AGE AND TIRE NEWS expects to publish a story on rubber cements, but we would advise you to get in touch with rubber experts such as Dr. Frederick J. Maywald, 133 Water Street, New York City, and Wilmer Dunbar, Greensburg, Pa., who will be able to solve your problems.

Technical Course in Rubber Manufacture

By H. E. Simmons, M.S.

Professor of Chemistry in the Municipal University of Akron

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SECTION XXIII

Physical Testing of Compounded Samples

In our last sections we considered the chemical analysis of compounded samples of rubber and from that discussion we come with the idea that a great deal more information is necessary concerning a given sample than can possibly be gained from the chemical analysis. So in search for more light we turn our attention to the obtaining of some of the physical properties of the respective samples and this leads us to the discussion of the physical testing of compounded samples.

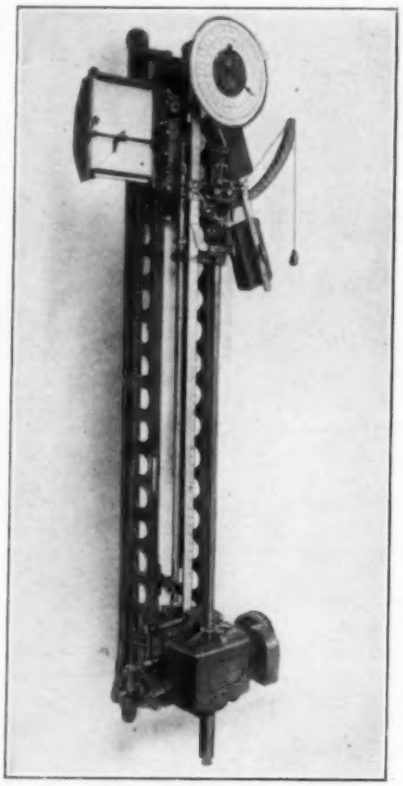
It is obvious in the beginning that not all the physical tests known should be carried out on every sample submitted. For example, it is hardly necessary to test a solid tire for electricity, nor submit a toy balloon to an abrasion test.

We shall discuss the following tests and the reader will be able to judge where each will be used to advantage:

1. Tensile
2. Elongation
3. Set
4. Hardness
5. Rebound
6. Hysteresis
7. Abrasion
8. Penetration
9. Tearing
10. Specific Gravity
11. Ageing Tests
    a. to heat
    b. to light
    c. to weather
    d. to artificial conditions
12. Dialectric Power
13. Viscosity
14. Special Tests for pneumatic tires
    a. Friction test
    b. Wearing tests on test cars
    c. Test tires
15. Special tests for solid tires
    a. Barbeque test
    b. Road tests

No single one of the above tests is sufficient to recommend or to condemn a sample, but several that are applicable must be tried and as a result of all these one arrives at a conclusion.

Practically all of the above tests are to be carried out in a laboratory and therefore they are all more or less artificial. By this we mean that we are not subjecting the sample to the actual conditions under which the rubber will be used but we try to approach these conditions and from the results obtained speculate as to how that rubber will conduct itself under the conditions for which it was designed.



A Scott Rubber Tester

Of course the most valuable test to which we can put any compound is to try it out where it is to be actually used, but such tests consume too much time before results are available. Then again the compounder wants to try out many new compounds, designing them for special purposes, and if it is possible to gain the information from some simple physical tests in the laboratory it saves both time and money. With this understanding we shall discuss the above physical tests.

The first in order is tensile strength and here we find several conditions which influence the results obtained. For instance, the kind of machine used; the shape of the test pieces and how they are made; the speed at which the load is applied; the temperature of the rubber when the test is being made; and the grain of the rubber.

There are several machines on the market each possessing certain merits. The ones in common use are the Scott, Olsen, Cooey, Schopper and Schwartz. Due to certain differences in these machines, and the peculiarities of rubber, it is difficult to obtain results which check well by using two different makes of machines. The Cooey runs a little more rapidly than the Olsen, and, as a matter of fact, the Cooey machine will show a greater tensile than the Olsen. Therefore it is necessary when striving to obtain some comparative tests to use the same machine, whatever one that may be.

The shape of the test piece and the way in which it is made is an important point in connection with tensile tests.

The two forms most in use today are the straight pieces, which are enlarged at each end to allow the fixing of the clamps, and the ring form. The American machines use largely the straight pieces while the Schopper machine uses the ring form. These test strips are made either by cutting them out of a cured sheet by means of a die either with a press or by striking with a mallet. In some cases the sample is cured in a mold of the desired form for the test piece. This latter method is not as satisfactory as the use of a die, for if there remains a rind on the test piece after being removed from the mold, it must be trimmed off, and, in so doing, it is a very difficult matter to avoid nicking the test piece itself; and if that is done the sample will fall short of its correct tensile due to the tearing which will start from that point.

In using the die care must be taken to keep the cutting edges sharp and free from nicks. In using the die it will be found that dipping it first into a basin containing a little water, just to moisten the cutting edges, will greatly aid in the work.

Tests

In connection with the Schopper machine, there is a die press for cutting out the rings and also a caliper for determining the thickness of the

sample. It is difficult to obtain the true thickness of the sample unless it is made from stock which has been calendered before curing, for otherwise it will vary some. The width is

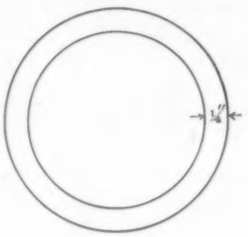


FIG. 1

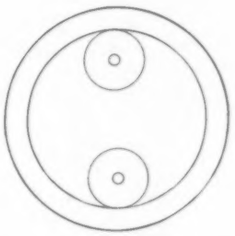


FIG. 2

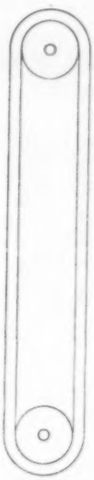


FIG. 3

governed by the die and is generally one-quarter of an inch as shown by the accompanying Fig. 1.

Fig. 2 illustrates the ring test placed over the two pulleys of the Schopper machine ready to be tested. Fig. 3 represents the same ring after the test is begun and the pulleys have moved apart a short distance and it will be observed that in such a test piece, the outer circumference of the

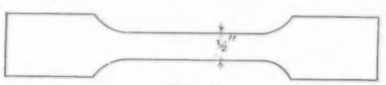


FIG. 4

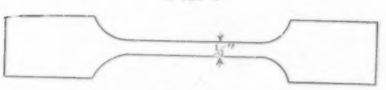


FIG. 5

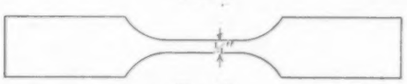


FIG. 6

ring is stretched more than the inner circumference, or in other words it is under a greater strain than the inner and consequently the ring will fall short of its true tensile due to tearing. This is the greatest objection to the ring form.

The accompanying figures will illustrate the straight test pieces. Fig. 4 is termed the short one-half inch strip and is used with very elastic stocks which will not break in the range of the machine. Fig. 5 is the one-fourth inch die and is used with stocks which have a high tensile. Fig. 6 is a short one-fourth inch die and is used with stocks possessing both a high tensile and a great elasticity. Ordinarily a test piece fails at its narrowest point and thus effects the break inside of the marks on the rubber. In ordinary work it has been stated by the Bureau of Standards that the small test pieces will give larger values than the larger strips, and in this connection the following data has been obtained.

Die Used.	Tensile.	% Elongation.
D ½ in.	2440	470
E ¾ in.	2845	612
F ¼ in.	2538	575

From these figures the truth of that claim seems to be confirmed.

To study the problem still further, sixty-four stocks were prepared and from each of these one ¼-inch die, Fig. 5, was cut and one ½-inch, Fig. 4, was taken. Then each strip was tested in the same machine.

FIG. 7

There were forty-nine instances where the ½-inch gave a tensile of 100 pounds or more greater than the ¼-inch piece, thirty-three cases where the ¼-inch piece proved that much

FIG. 8

the better, and forty-six cases where the two checked within 100 pounds. From this work it would seem that the difference in actual results are slight, whether the large or small strip is used. Considerable has been said concerning the speed with which the load is applied during a test. It has been known for some time that this point has a definite influence upon the tensile of a stock. That is the tensile strength indicated in a test depends to some extent upon the speed with which the rubber is stretched.

And in Bulletin No. 38 of the Bureau of Standards the results of their experiments illustrate that point very clearly:

No. 1			
Speed in in. per min.	5	25	45
Tensile strength per sq. in.	2495	2690	2720
Elongation %	605	635	635
No. 2			
Speed in in. per min.	5	25	45
Tensile	1900	1940	1970
Elongation	465	500	490
No. 3			
Speed in in.	5	25	45
Tensile	375	430	465
Elongation	340	360	375

From these figures, it is apparent that as the speed with which the load is applied is increased, the tensile will be higher. Of course there is a limit to this where increasing the speed will have no further effect upon the results.

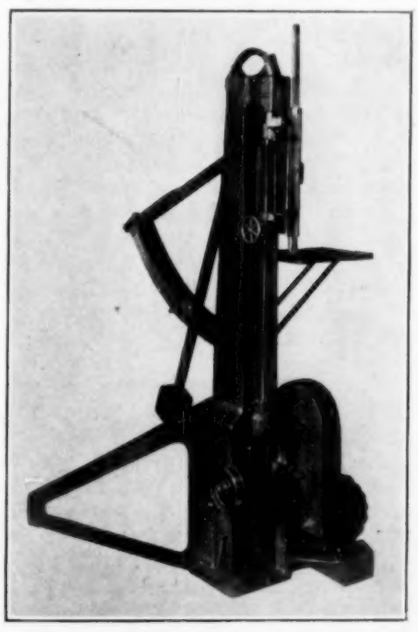
The average speed adopted for machines today is from twenty to twenty-four inches per minute and this constant speed will always give comparative results, and that is what is desired. However, if check work is being done and different machines being used it would be advisable to take this factor into consideration.

The temperature of the rubber when the test is being made also influences the results. Here again the Bureau of Standards has given some valuable experiments. Four stocks were made up and then test pieces taken, which were later tested at 50° F., 70° F. and 90° F. Before each test was made, the room in which the work was done was maintained at the temperature desired for at least three hours. The exact results of these tests may be found in the Bulletin 38 referred to above.

First they found that the variation between 50° and 70° was much greater than between 70° and 90°, and as a result the Bureau now carries out these tests at 75° F. This is a temperature fortunately that is fairly easily maintained in working conditions.

"Grain"

When a sample of rubber is milled and perhaps calendered all in the same direction there results what may be termed "grain." Then if this sample is cured, the one cutting the test pieces has the choice of cutting them parallel with this grain or transverse to it. From considerable work done along this line it is plainly evident that the direction in which the sample piece is cut does influence the results, therefore when obtaining comparison upon stocks, care must be



OLSEN VERTICAL TESTING MACHINE

taken in this particular. A theory by way of explanation of the phenomenon has been suggested by a friend and Fig. 7 illustrates the arrangement of rubber particles in a crude sample of rubber. The particles may be considered as chains linked together as colloidal aggregates by fine threads similar to those obtained when a stirring rod is dipped into a glue gel and then is removed. As a result of the treatment through which the rubber has passed these chains are extending in all directions. Now during the milling there is a tendency to straighten out these chains and thus bring them closer together as shown by Fig. 8.

If the above theory has anything of truth in it, we should expect that a test strip cut longitudinally should contain more of the chains and thus give a larger tensile test than a strip cut transversely or across the grain.

To test this point the Bureau of Standards prepared four samples, taking both longitudinal and transverse test strips from each, and obtained the following results:

Tensile strength..	1	2	3	4
Longitudinal	2730	2670	1200	880
Transverse	2575	2030	1260	690
% Elongation—				
Longitudinal	630	640	480	315
Transverse	640	670	555	315
Permanent Set after 300% elongation for one minute with one minute rest.				
Longitudinal	11.2%	6%	22.1%	34.3
Transverse	7.3	5	16.3	25.9

From these figures we actually see that the tensile is greater in the longitudinal one, as would be expected. The set runs higher in the longitudinal one also.

Therefore we must take into consideration the above facts when carrying out tensile strength determinations.

In addition to these points, a great deal of care and trouble is caused by the jaws which grip the test strips.

As the rubber stretches its cross section grows less, therefore a jaw must be used which will tighten as the load is applied.

The ring form of course obviates these troubles for the rings pull around pulleys.

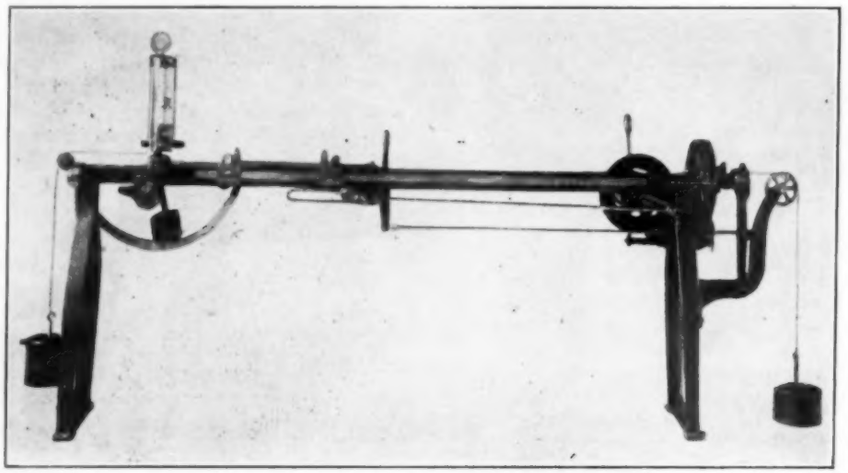
One of the best forms of jaws is that used by the Olsen machine where eccentric disks grip the rubber and pull tighter as the rubber elongates.

The weight indicated by the machine should be indicated by a lever arm and not by a spring, as the latter requires calibrating too often.

The actual determination of the tensile is then accomplished by pulling such a test strip whose exact thickness and width is known in one of the machines used above and then calculating and reporting the number of pounds which it requires to break a strip possessing a cross sectional area of one square inch.

For example a test strip possessed a thickness of 11/64 of an inch and a width of ½ inch, pulled 180 pounds before it failed. Its tensile strength is figured thus:

½ times 11/64 = 11/128 square inches cross section area and this pulled 180 pounds, therefore its tensile will equal 1/11 of 180 = 16.4 times 128 = 2029 pounds. The elongation is generally carried out at the same time as the tensile and on the same machine.



Olsen's Autographic Rubber Testing Machine

On the test piece, a distance of two inches is carefully marked off before placing it in the machine. As the load is applied, the distance between the two marks is carefully measured and when the sample fails the distance is recorded in inches. The elongation is then figured as the per cent the original two inches is of the length it stretched before rupture. As an example the sample above elongated 11.3 inches, therefore its elongation is 11.3/2 times 100 = 565%. The ring form machines are the only ones that possess an automatic device for recording the elongation and such an improvement will be welcomed for the other machines.

The "set" or recovery is also determined at the same time as the above. The method used extensively has been to place the broken ends of the test strip together and measure the distance between the two marks which originally bound the two-inch distance before breaking. The measurement is made one minute after breaking and is referred to as immediate set in contrast to permanent set which is the more valuable. The set is also calculated in percent and represents the ratio of the stretch of the two inches to the total elongation.

From the above example the two-inch marks were found to be 2.6 inches apart after rupture and the elongation was 11.3 inches, therefore the immediate set is equal to $\frac{2.6 - 2}{11.3}$ times 100 or 5.3%. Several methods have been tried and recommended for ascertaining permanent set. Beadle and Stevens suggest that the sample be stretched 400% and be held for twenty-four hours, then released and measured six hours later. This will give comparable results if adhered to for general work, but requires too much time.

In this as in immediate set there is the probability that in many specimens this will not give the true recovery for there is likely to take place a tearing or breaking down of the rubber and this of course decreases the set. Along this line the following experiment was tried:

Half inch test pieces were prepared and then stretched 75% of the breaking elongation. That is, if a sample elongated 13 inches it was stretched 9.75 inches and held for one hour, two hours, three hours, eight hours, and sixteen hours. The set was measured then in one minute, ten minutes, twenty minutes, forty minutes and sixty minutes and showed the following:

Time extended.	1M.	10M.	20M.	40M.	60M.
1 hr.....	.65	.49	.49	.46	.46
2 hr.....	.65	.63	.60	.50	.45
3 hr.....	.65	.55	.53	.52	.50
8 hr.....	.68	.56	.54	.53	.52
16 hr.....	.75	.70	.67	.60	.53

As a result of this experiment, the following method which is easily and rapidly carried out is to be recommended:

The sample is stretched 60% of its elongation and held five minutes, then released and allowed to rest for three minutes. The sample is subjected to this stress three times, then allowed to rest ten minutes and measurement made. By this shorter method about 98% of the permanent set is found.

In the next section we will continue this discussion of physical testing.

W. D. MOFFAT
PRESIDENT

W. I. SEAMAN
TREASURER

GEORGE NEWBOLD
BUSINESS MANAGER

THE RUBBER AGE AND TIRE NEWS

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EDITOR

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ADVERTISING MANAGER

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AS the war goes on the urgency of the labor situation becomes more and more apparent; and it must be met. Within the year the number of men called to the colors probably will be doubled—approximately 3,000,000. No less in the rubber than in any other industry does the problem present difficulties of solution.

Inasmuch as women now are freely employed in work hitherto considered wholly outside of their spheres of industrial activity, the thought that they may be more generally utilized in the manufacturing of rubber forces itself to the front—but the necessity of exercising extreme care in selecting women for this labor is plainly apparent.

Perhaps a leaf from Great Britain's book of experience in this matter will prove instructive.

In the monthly (May) review of the U. S. Bureau of Labor Statistics, Mary Conyngton writes on the employment of women in the British munition trades. She says:

According to the London *Labor Gazette*, the great majority of the women munition workers are in the metal and the chemical trades. For these it gives the following figures of increase:

	Metal trades.	Chemical trades.	Both groups.
Number of females employed, July, 1914	170,000	40,000	210,000
Increase, October, 1917, in number employed	379,000	53,000	432,000
Total, October, 1917	549,000	93,000	642,000

As the total increase between these two dates in the number of women industrially employed is given as 530,000, it is evident that these two branches of the munition trades are responsible for some four-fifths of the whole increase.

Two questions suggest themselves: How were these hundreds of thousands of women secured and trained, and how did they fare in the new employments to which they rushed? As to the first, there was little difficulty about securing them. When the demand first arose, women were still suffering severely from the unemployment which followed the outbreak of the war, and the munition trades offered a welcome resource for the surplus workers. As this was absorbed and the demand continued, women came in from other trades, and from domestic service, married women who had withdrawn from industry came back, and women who had never worked for wages entered munition factories as a patriotic duty.

Concerning the training of women in their new occupation, the writer states:

The training given the women has changed with the changing needs of the war. At first they were employed mainly either in manual labor, which required only strength, not training, or in what might be called ordinary factory work, on which women had long been employed in other industries. For this, little instruction was needed; the woman was shown her machine, told what to do, and with little or no practice could begin work. At this time, she was very apt to be employed either as a helper to a man, or on one of a group of machines under the supervision of a skilled man.

Later as the need for skilled workers became more urgent, the technical schools of the kingdom were pressed into service for training munition workers, and the Government itself established instructional factories in which women were trained for work demanding skill and accuracy. Under this training they have shown an unsuspected capacity for mechanical work; they are already performing a variety of highly skilled operations, and the field of their activities is steadily extending.

This work was under Government control, and it was not long before vexatious questions arose. First was the matter of wages, and this was settled by the adoption of the principle of the standard wage for women when working on skilled jobs. Other women were divided according to whether they were doing what was known as men's work or women's work, and for each class a standard rate was fixed.

Then came the questions of working hours, Sunday and night work, welfare work, etc. Finally the working hours of women were restricted to 60 hours a week, and a Sunday rest or its equivalent is required. Night work, while considered objectionable, is still permitted owing to the exigencies of the situation.

Matters of shop discipline also presented themselves, and some of these required delicate handling.

There is little doubt that employers of rubber workers sooner or later will be compelled in heavy work to use female labor, and a preliminary survey of this field will not prove a waste of time.

What Is a Profiteer?

Popularly the word "profiteer" is understood to mean a person or corporation who makes fraudulent charges for work done for the Government, or overcharges, thus obtaining exorbitant or excess profits in the marts of trade—but is not the word often used carelessly; by some persons almost indiscriminately? The number of words in the English language which have exact, legal definitions is far from large, and "profiteer" is not one of them.

While the taxation program of the Government is under consideration in Congress, this word will many times be exploded in the verbal pyrotechnics which have become an important feature of any revenue legislation in Washington.

Business, both large and small, will await with some constraint the efforts of our national lawmakers to evolve a revenue plan which will prove equitable not only to various businesses, but to all sections of the United States. The fact that to win the war the activity of legitimate industries is absolutely essential must not be overlooked. All war and no business will not improve Uncle Sam's fighting chances.

The Crude Rubber Situation

Certificates of Allocation Must Be Filed as Granted—Supplemental List of Valuations of Certain Grades of Crude Rubber—Restrict Imports of Pontianak, Gutta Siak, Gutta Percha and Balata—Recent Rulings of the War Trade Board

The Committee on Rubber and Kindred Products of the Rubber Association has sent warnings to rubber manufacturers and importers impressing them of the importance of filing certificates of allocation, as granted by the War Trade Board, with the importers with whom they have contractual obligations as soon as possible. Without such certificates, importers are unable to obtain a license to have rubber shipped overseas.

The recommendation is appended that no manufacturer make a new contract until he has supplied his importer or importers with sufficient allocation certificates to take care of his old contractual obligations. If the present amount allotted to him is not sufficient to take care of all the rubber he has under contract during the months covered, then it is urged that he distribute same pro rata irrespective of price and make arrangements to furnish further certificates when forthcoming to discharge the balance of his contracts.

Supplemental List of Valuations

The following supplemental list of valuations has been approved by the War Trade Board on the grades of rubber mentioned below:

Manicoba 36½c on the basis of 30% loss in washing and drying.

Lower qualities to be priced in accordance so that they shall not cost the manufacturer over 52c per lb. dry weight.

Mollendo Fine	60c
Tapajos	61c
Xingu Fine	63c
Upper Amazon Weak Fine	55c
Lower Amazon Weak Fine	45c

The Government shall have an option at the above given prices to the same extent as already given on the grades, the maximum price of which was published in the May 25 issue of THE RUBBER AGE AND TIRE NEWS.

The War Trade Board also makes the following revision on two grades of plantation rubber listed in the May 25 issue of THE RUBBER AGE AND TIRE NEWS:

Standard Quality Smooth Smoked Sheets, now valued at 60c. price changed to	61c
Standard Quality Unsmoked Sheets, now valued at 61c, price changed to	60c

Imports of Other Gums Restricted

The War Trade Board has taken certain action in regard to the importation and an option price to the Government upon Gutta Joolatong (Pontianak), Gutta Siak, Gutta Percha and Balata, which is fully set forth in the following letter from the War Trade Board to the Rubber Association of America:

"GENTLEMEN:—

"In further pursuance of our policy of restricting of the tonnage of and providing for the allocation of certain raw materials imported into this country as set forth in our letters to you concerning crude rubber under dates of May 1, 1918, to May 8, 1918, we beg to advise you that the War Trade Board has determined—

"That from and after May 28, applications for license for the importation of Gutta Joolatong and Gutta Siak from overseas will be refused;

"That all licenses now outstanding for the importation of Gutta Joolatong, Gutta Siak, Gutta Percha and Balata from overseas be revoked. New licenses may be granted, however, covering the importation of Gutta Joolatong, Gutta Siak, Gutta Percha and Balata from overseas provided that such commodities are covered by a through bill of lading bearing date prior to June 1, 1918, and provided also that the applicants for such licenses shall deliver a valid and binding option to the United States Government covering the Gutta Joolatong, Gutta Siak, Gutta Percha and Balata so imported in substantially the following form:

"'That the United States Government shall have, and it is hereby granted, an Option to purchase at the prices and on the terms hereafter set forth, all or any part of the ——— covered by this Guaranty, and also all other ——— now or hereafter owned or controlled by the undersigned until sold and delivered to a manufacturer.

"In the event of the exercise of such Option, the price to be paid for ——— will be ——— per pound for ———

_____

_____

_____

_____

and for other grades the prices shall be at their relative values as hereafter to be determined by the War Trade Board.

"'That the undersigned will not sell, transfer, or deliver the ——— covered by the foregoing Option, or any part thereof, to or for the benefit of any person at a price greater than the prices set forth in the foregoing Option, except such ——— as he may under contractural obligation to deliver under a contract executed and in force prior to May 29, 1918.

"'Copies of such contracts, sworn to as being correct, must be filed with the War Trade Board within five days from this date.'

"The prices to be inserted in the above Option in respect of the commodity covered are as follows:

GUTTA JOOLATONG (PONTIANAK)

	Per lb.
Palambang	16c
Banjermassin	15c
Sarawak	14c

PRESSED GUTTA JOOLATONG

	Per lb.
Having approximately 40% of shrinkage loss	25c

GUTTA SIAK

	Per lb.
In bond	28c

BALATA

	Per lb.
Prime Suriname Amber Sheet	97c
Fair Average Sheet	95c
Venezuela Block	71c
Columbian Block	61c
Panama Block	59c
Other grades of Balata at their relative value.	

GUTTA PERCHA

	Per lb.
Red Macassan	$3.00
Other grades at their relative value.	

All of the above values are on the basis of c.i.f. New York.

"The War Trade Board has further determined that the total amount of Gutta Percha to be imported from overseas into the United States during the year commencing June 1, 1918, and ending May 31, 1919, shall be limited to 650 Long Tons and that such dates shall be held to apply to the dates of the bill of lading covering the shipment and not to the time of entry of Gutta Percha in this country, and has made a similar determination limiting the amount of Balata to 1400 Long Tons under the same conditions.

Very truly yours,

WAR TRADE BOARD.

(Signed) C. M. WOOLLEY."

Copies of the option form noted in the letter of the War Trade Board can be obtained from the Rubber Association upon request.

Advance Allocation Certificates

Manufacturers holding Government contracts for June and July delivery who find it necessary to have licenses or allocation certificates for the importation of crude rubber in advance of their determining the exact quantities of same they will consume on their Government contracts during these two months, may, according to a ruling of the War Trade Board, now have applications promptly considered by the War Trade Board to the extent of 75 per cent of their probable consumption. Applications must be made on an approved form, which can be obtained from the Rubber Association.

Rubber for Indirect Government Contracts

The Committee on Rubber and Kindred Products of the Rubber Association has prepared and printed a standard form of affidavit for replacement of rubber used in the manufacture of goods for indirect Government orders.

When this form is properly filled out, it gives a history of the rubber from the time it leaves the manufacturer's hands until it is finally delivered to the Government on a Government contract. This form, properly filled out, is to be attached to the regular form of application for replacement, and it will entitle the manufacturer to receive the amount of rubber used in filling the order.

Manufacturers can obtain a supply of these forms by writing to the Rubber Association.

Ruling on South American Rubbers

A ruling that will be welcomed by manufacturers using South and Central American rubbers has been made by the War Trade Board.

Under the present restricted program the amount of dry rubber obtainable has been a prime consideration to the manufacturer, with the result that unless the program should be modified somewhat, South and Central American rubbers would be placed at a serious disadvantage.

The question was taken up with the War Trade Board by the Committee on Rubber and Kindred Products, and the situation fully explained. As a result thereof, the War Trade Board has promptly made a ruling to the following effect:

Tonnage of crude rubber imported in the United States from Central and South American countries shall be calculated not upon the actual weight thereof at the port of shipment but upon the following schedule deducting the shrinkage in accordance with the percentage allowed thereon for each grade as follows:

	Shrinkage
Up River Fine Para	25%
Islands Fine Para	33⅓%
Up River Coarse Para	30%
Islands Coarse Para	30%
Cameta Coarse Para	30%
Upper Caucho Ball	25%
Lower Caucho Ball	30%
Central American Rubbers	30%

Example: Up River Fine Para shrinks 25 per cent from the port of shipment to the dry room of the manufacturer. One hundred pounds of such rubber will, for the purpose of rubber regulations, be licensed as 75 lb.

To further illustrate: A manufacturer supplying an allocation certificate for 7500 lb. to his importer will be entitled to receive 10,000 lb. shipping weight of Fine Para rubber.

The following approximate formula will in all probabilities be followed by the Bureau of Imports in granting licenses

for shipments of wild rubber from Central and South America:

Grade	Amount of Application (tons)	Amt. Chged. Allocation (tons)	Issue to ship (tons)
Up River Fine Para.....	100	100	132
Islands Fine Para.....	100	100	150
Up River Coarse Para...	100	100	140
Islands Coarse Para.....	100	100	140
Cameta Coarse Para.....	100	100	140
Upper Caucho Ball.....	100	100	132
Lower Caucho Ball.....	100	100	143
Central American Rubbers	100	100	140

The War Trade Board has ruled that for the execution of Government contracts requiring speedy delivery manufacturers may include in their application for replacement of crude rubber used during the month of May, 1918, the rubber content of such merchandise made prior to May 6, delivered after May 6, on any of their Government contracts. Caution is advised to prevent the including of the rubber content of any merchandise delivered on orders prior to May 6.

News of the Rubber Trade

Miller Adds to Organization—Jenkins Packing Manufacturer Dead—Rubber Company Dividends—Enemy Trading List No. 2—Charles J. Bailey Dead—Goss in Army—Rubber Exports to Norway—Dr. William James Hennessy Dead

Miller Adds to Organization

Announcement has just been made by Frank C. Millhoff, general sales manager of the Miller Rubber Co. of Akron, Ohio, of further increase in the company's already large southwestern organization. The changes are due, it is explained, to an ever increasing demand in that big territory. At the same time the company announces organization changes in its western and southwestern territory that are of unusual interest to the tire trade.

A direct factory branch has been established in Oklahoma City under management of John J. Watt, one of the best known tire men in that section of the country. Eight of Watt's sixteen years of tire experience have been in the Oklahoma territory. The territory of the new Oklahoma City Miller branch not only includes the entire state, but it extends about half way into Arkansas, including such cities as Little Rock and Hot Springs.

Texas is also the scene of extensive sales organization changes. During the last two years, a Miller branch has been operated at Fort Worth, but growing business throughout the big state made the Fort Worth department quite inadequate to the large territorial demands. Consequently, the Fort Worth branch headquarters have been moved to Dallas, the largest distributing center in the state, leaving, however, a well equipped service station at Fort Worth. A new branch has been opened at Houston and also a service station established at San Antonio. From Dallas, the Miller organization reaches up into the Panhandle with a distributing connection at Amarillo.

New distributing agencies, modern in all details, have been appointed in New Orleans and Shreveport for the Louisiana trade and much of the other southwest territory will continue to be handled through the Kansas City branch.

Jenkins Packing Manufacturer Dead

Charles Jenkins, for many years identified with Jenkins Brothers, Boston, Mass., and New York City, and the Jenkins Rubber Co., Elizabeth, N. J., manufacturers and dealers in valves, died recently at his summer home in Winthrop, Mass. Many years ago Mr. Jenkins became connected with the Tuttle Rubber Co., Holyoke, Mass., which specialized in the manufacture of washers and packings for Jenkins valves. He later joined his brother, Alfred B. Jenkins, in organizing the Jenkins Rubber Co., which rapidly developed into an important concern. Charles Jenkins retired from the rubber business in 1896, selling out his interests to his brother. His widow survives him.

Charles J. Bailey Dead

Charles J. Bailey of Boston, Mass., proprietor of one of the oldest exclusive rubber retail stores in the country and well known as the inventor of a great number of rubber specialties, died recently at his home in Newton, Mass., at the age of 69.

One of Mr. Bailey's early inventions was a flesh brush made of rubber, but the most important of his discoveries undoubtedly was a non-skid tread for pneumatic tires. The "Bailey Tread" was used under license by practically all tire manufacturers. Mr. Bailey's other rubber inventions were, like his flesh brush, practically all in the specialties line, and included a variety of articles, such as heels and soles, footwear, toys and toilet sundries.

Charles J. Bailey was one of the first members of the Rubber Club, which later became the Rubber Association of America, and from his store he did a very large jobbing and retail business. He leaves a widow, one son and three daughters.

Rubber Company Dividepds

The Ajax Rubber Co., 1796 Broadway, New York, has declared a quarterly dividend of $1.50 per share, payable June 15, to stockholders of record May 31, 1918.

The Amazon Rubber Co., Akron, Ohio, has declared a quarterly dividend of 1½ per cent on its common stock.

The Goodyear Tire & Rubber Co., Akron, Ohio, has declared its regular quarterly dividend of 3 per cent, payable June 1.

The Pennsylvania Rubber Co., Jeannette, Pa., has declared its regular quarterly dividend of 1¾ on preferred and 1½ per cent on common stock, payable June 29, to stockholders of record June 15, 1918.

The Plymouth Rubber Co., Canton, Mass., has declared a quarterly dividend of 1¾ per cent on its preferred stock, payable June 1, to stockholders of record on May 24, 1918.

The Republic Rubber Corporation, New York City, has declared a quarterly dividend of 1¾ per cent on its preferred stock, payable on June 1, 1918.

Enemy Trading List No. 2

The War Trade Board has issued in booklet form a second Enemy Trading List, naming persons, firms and corporations that have been declared to be enemies or allies of enemies of the United States. This booklet also contains the Trading with the Enemy Act in full.

Goss in the Army

Charles H. Goss, formerly assistant to the general manager of the Bergougnan Tire Corp., New York City, has entered the army, and is now stationed at Camp Joseph E. Johnston, Jacksonville, Fla.

Rubber Exports to Norway

The War Trade Board announces that, in consequence of the conclusion of a general commercial agreement with Norway, exports of various articles, including rubber goods, may be resumed under license, subject to the general policy of conservation and to the general rules and regulations of the War Trade Board. The agreement assures to Norway supplies to cover her estimated needs in so far as these can be supplied without detriment to the war needs of the United States and its associates in the war, and contains long lists enumerating the quantities of rubber and miscellaneous commodities which Norway is entitled to receive. Guarantees are to be exacted by Norway in the case of any re-export to neutrals against a benefit to Germany and its allies from such re-export. The schedule referring to rubber is as follows:

SCHEDULE C. RUBBER, ETC. Kinds of Goods.	Quantities in Metric Tons.
Rubber	500
Rubber covers for automobiles and trucks (includes new importations on cars) *pieces*	17,000
Rubber tubes for same (including new importations on cars)	8,300
Solid rubber tires	1,100
Rubber tires for motorcycles	2,100
Rubber tubes for same	2,100
SCHEDULE E. MISCELLANEOUS.	
Shoes, boots and rubbers (mostly rubbers)	200

Applications for licenses to export commodities which are not to be consigned to a Norwegian import association will not be considered unless the prospective importer has given a guarantee certified by the Norwegian Finance Department, and further certified by an American Consul in Norway, who will furnish the importer a code word and an identification number. This code word and identification number should be forwarded by the importer to the prospective exporter in the United States and specified on Supplemental Information Sheet X-106, which should be attached to the application when applying for an export license.

Temporary arrangements have been consummated, in accordance with which commodities consigned to Norwegian import associations, may be exported on the basis of import certificates issued by such associations either subsequent or prior to May 10, 1918. Certificates issued prior to May 10, 1918, must be confirmed subsequent to May 10, 1918, by the import association which issued the same. Exporters in the United States should not apply for licenses to export to Norway on the basis of old import certificates until they are advised that such certificates have been confirmed.

The War Trade Board is advised that the Royal Norwegian Automobile Club, Christiania, Norway, will accept on behalf of the Norwegian importer actually interested, consignments of automobile and motorcycle tires and tubes, while the Norwegian Cycle Tire Importers' Association, the same city, will accept consignments of bicycle tires on the same basis.

Dr. William James Hennessy Dead

Dr. William James Hennessy, the oldest and most prominent physician in Palmyra, N. Y., and former secretary and treasurer of the Crandall Packing Co., Palmyra, N. Y., died recently in that city. Dr. Hennessy conducted a successful practice in Palmyra for more than forty years. He was a member of the Wayne County Medical Association, prominent in Masonic circles and influential in the affairs of his town. He is survived by his widow, by his son, J. Jenner Hennessy, vice-president of the Crandall Packing Co., now serving in the United States Naval Reserve Forces, and by two daughters.

Items of Interest to the Rubber Trade

S. A. E. to Hold Summer Meeting in Dayton—Remarkable Goodrich Fire Record—Fred Stern Opens New Offices—Transatlantic Chemical Moves to New Quarters—Cleveland Firm Expands—Patterson in Government Service

Summer Meeting of the S. A. E.

The Society of Automotive Engineers will hold its summer meeting at Dayton, Ohio, on June 17 and 18. The sections conference and Standards Committee meeting will take place on June 16. To direct all arrivals in regard to meeting arrangements, accommodations, etc., two bureaus of information will be established, one at the Union Depot, the other at the Miami Hotel, which will be the S. A. E. headquarters. The registration of members and distribution of badges will be made at the entrance of Triangle Park, where lunch will be served on both days of the meeting.

Many papers will be read, covering a wide range of subjects. Fay B. Faurote of the Curtiss Aeroplane Co., will talk on "Airplanes of Taday."

A feature of this summer's meeting will be an exhibition of automotive military apparatus, including foreign engines, ordnance apparatus, military trucks, motorcycles, artillery fire directing and wireless telephony apparatus.

In view of the restricted railroad service, members expecting to attend the convention should make their reservations immediately. A parking space for automobiles will be arranged at Triangle Park for the convenience of those who motor to Dayton. Already about 600 persons have made reservations for the Orville Wright dinner.

The Meetings Committee of the S. A. E. will be in general charge of the arrangements. This committee is composed as follows: David Beecroft, chairman; Herbert Chase, Fred. E. Moskovics, F. E. Place and C. F. Scott. Many details of the convention will also be handled by members of the Dayton S. A. E. Committee: Orville Wright, honorary chairman; Vincent G. Apple, chairman; F. H. Hoover, 137 North Ludlow Street, Dayton, Ohio, secretary and treasurer; Capt. Howard Blood, F. J. Blose, Carl Buest, John F. Huffman, W. B. Stout and I. B. Swagles.

A separate session in the interest of tractor engineering will be held, at which two papers will be read by E. L. Sorenson on the subject of the "Fundamentals of Tractor Design" and the "Design of Farm Implements and Machinery for Use with Tractors."

Remarkable Goodrich Fire Record

Twelve years, with not a single fire loss to exceed $100, is the record of The B. F. Goodrich Rubber Co., Akron, Ohio. Although this corporation carries millions of dollars of fire insurance, no claims have been asked in this period. This record is remarkable when one considers that the company's property includes over sixty factory buildings with a total floor space of over 100 acres, and employs over 19,000 people. According to R. W. Parry, Fire Chief of the Goodrich Company, this record is the result of "constant watchfulness."

Twelve fire fighters guard the immense properties of the company. These men have modern quarters located in the heart of the plant and can reach the farthest point among the factory buildings, a distance of nearly 1,500 feet, in a fraction over two minutes. These excellently drilled men are everlastingly on the lookout for fire hazards. They make daily inspection tours of the plant and on these trips see that aisles and doorways are not blocked. They also inspect the fire apparatus daily.

The Factory Mutual Fire Insurance Co., one of the strictest fire insurance organizations in the world, reports that the Goodrich plant is the cleanest and best protected factory in the State of Ohio.

Chief Parry and his organizaion have the co-operation of every employe of the institution. Drills are conducted in the different departments of the plant—for instance, 225 girl employes of one building, scattered on five floors, have repeatedly left the building in one minute and twenty seconds during fire drills.

According to Mr. Parry, 90 per cent. of the small fire flashes that might terminate in large and costly conflagrations, are extinguished before the company department arrives. These flashes are put out by employes by the aid of chemicals, and 75 per cent. of them are without damage caused by water. In other words, only 25 per cent. of them reach the heat demanded to open the automatic sprinkler heads. These heads contract and open at 155 degrees heat. Another damage prevention, according to Mr. Parry, is the use of soapstone instead of sand. Rubber cement is used in large quantities in many sections of the plant and while soapstone serves the same purpose as sand, it has no injurious effects on rubber and rubber cement.

The fire fighting apparatus of the Goodrich consists of one hose cart, 135 chemical tubes, 28,600 feet fire hose, 2,000 fire pails, 543 fire extinguishers ranging in size from three to twenty-gallon capacities, two fire foam extinguishers, which are used only on oil fires, and 17,938 sprinkler heads.

Fred Stern Moves to New Quarters

Fred Stern & Co., importers and dealers in crude rubber, have moved from 44 Whitehall Street to 277 Broadway. The new telephone number is Worth 2411-15.

Transatlantic Chemical in New Offices

The Transatlantic Chemical Corp., manufacturers and dealers in dyestuffs and in chemicals, have removed their sales offices to 192 Broadway, corner of John Street, New York.

Cleveland Firm Expands

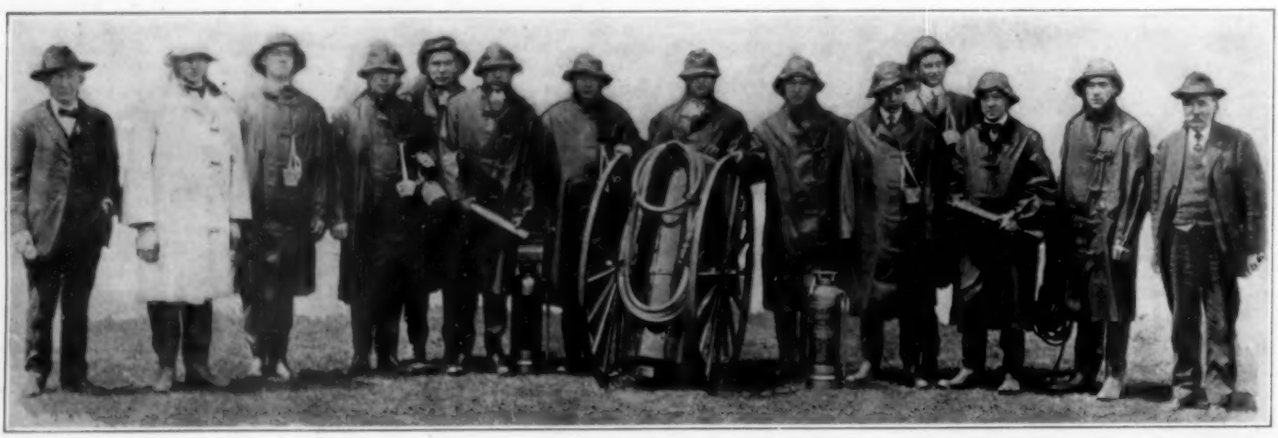
Stresen-Reuter & Hancock, Inc., dealers in colors, minerals, oils, chemicals, have again come to the front in Cleveland by further expanding their business in the Cleveland territory. Charles Sargent, Cleveland manager of the concern, having just completed a deal whereby his office will absorb the business of P. J. Robinson & Co., brokers and dealers in naval stores and various vegetable and animal oils. The deal includes the selling agency for the Cleveland territory of the Columbia Naval Stores Co., also the services of Mr. Robinson, who will take charge of the new department at 221 Engineers' Building on June 1. Mr. Robinson is well known and popular among the trade, and his wide experience in the naval stores business will no doubt insure immediate success for the new department.

Patterson in Government Service

W. B. Patterson, for the past seven years auditor of the sales department of the Republic Rubber Co., Youngstown, Ohio, has joined the War Department, and is stationed at the airplane engineering department of McCook Field, Dayton, Ohio.

Celebrates Fiftieth Anniversary

The E. H. Clapp Rubber Co., Boston, Mass., has sent out to the trade an "Anniversary Greetings" card thanking its customers and friends for the good will extended to it and for the patronage and friendship that aided its growth. The H. B. Clapp Rubber Co. was established in 1868.



CHIEF PARRY AND THE GOODRICH FIRE FIGHTERS

Happenings in Rubber Circles

Miller to Manage U. S. Rubber Co. Traffic in Boston—To Make New Rubber Punching Machinery—Trenton Rubber Companies Help Red Cross —Rubber Companies Expanding—Dubosc to Edit French Rubber Journal—French Society of Chemical Industry

Miller U. S. Rubber Traffic Manager

Hugh Miller has been appointed district traffic manager of the United States Rubber Co., with headquarters at the Boston office of that company, 130 Essex Street, Boston, Mass.

Wisconsin Co. Remodels Building

The remodeling of the Wisconsin State Rubber Co.'s building at 181 Fourth Street, Milwaukee, Wis., has been completed, and the floor space is now practically doubled. Eight salesmen are employed by the company and cover the entire state.

Officers of the firm are: H. D. Detienne, treasurer, and J. L. Wallis, secretary.

Some of the lines distributed by the company are: Mohawk, Goodyear and Motz cushion tires; also a complete line of mechanical rubber goods and clothing.

Hutchins Now with Gillette

Edward Hutchins, who was formerly supervision engineer of the Federal Rubber Co., has been elected vice-president and general manager of the Gillette Rubber Co., Eau Claire, Wis.

To Make Rubber Punching Machinery

The Malm Engineering Co., 588 Drexel Building, Philadelphia, Pa., has leased from the Malm Machinery Co., Dayton, Ohio, owners of the patents, the exclusive right to build its rotary punching machinery used in the manufacture of rubber heels and soles.

Seaman in New York

Lloyd I. Seaman, for many years connected with the tire industry, and for two years identified in Western and Northern New York territories with the Knight Tire & Rubber Co., Canton, Ohio, has been made Eastern district manager for the Knight Co. Mr. Seaman's headquarters will be in New York.

Trenton Companies Help Red Cross

The Trenton chapter of the American Red Cross recently received and acknowledged the following donations of materials from local rubber manufacturers: Alfred Whitehead, of Whitehead Bros., Rubber Co., 500 yards of extra heavy muslin; two bales of the same material from the Hamilton Rubber Co., and 500 yards of the same from the Thermoid Rubber Co.

Taylor Instrument Factory Addition

The Taylor Instrument Co., 95 Ames Street, Rochester, N. Y., manufacturer of thermometers, has had plans prepared for a one-story, 20 x 65 ft. addition to its factory.

Victor Awards Contract

The Victor Rubber Co., Springfield, Ohio, has awarded the contract for a two-story, 60 x 90 ft. addition to its factory.

Gillette Contracts for Additions

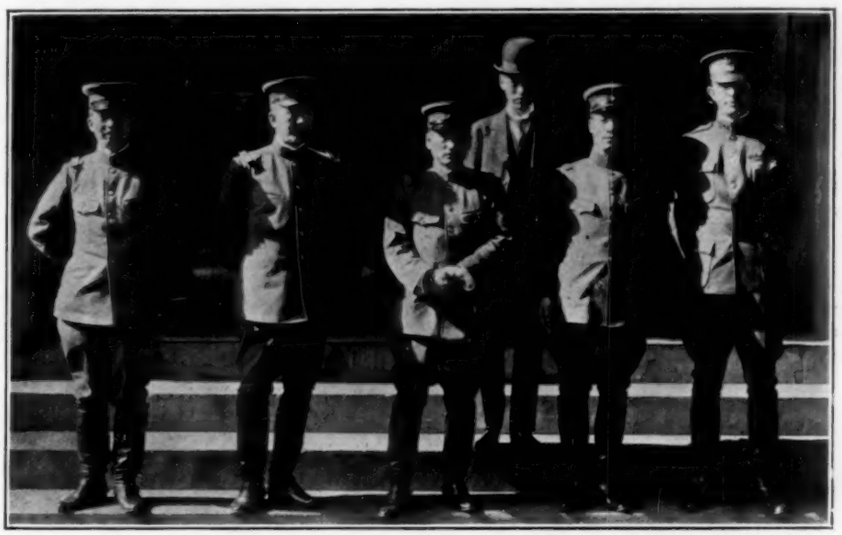
The Gillette Rubber Co., Eau Claire, Wis., has awarded the contract for a two-story, 64 x 140 ft. addition to its plant, to cost approximately $30,000.

Hodgman Awards Contract

The Hodgman Rubber Co., Tuckahoe, N. Y., recently awarded the contract for a one-story, 60 x 160 ft. addition to its factory. Estimated cost, $20,000.

Hartford Rubber to Enlarge Plant

The Hartford Rubber Co., Park Street, Hartford, Conn., has awarded the contract for a one and one-half story, 50 x 150 ft. addition to its plant, to be erected on Bartholomew Avenue, Hartford, and to cost approximately $14,000.



THE JAPANESE WAR MISSION AT THE GOODRICH PLANT

New Men with Combination Co.

Joseph P. Hall and Arthur R. Colvin, formerly treasurer and superintendent, respectively, of the Globe Rubber Tire Manufacturing Co., have joined the organization of the Combination Rubber Manufacturing Co., Bloomfield, N. J.

W. R. Thropp Award Contract

W. R. Thropp & Sons Co., manufacturers of rubber working machinery, East State Street, Trenton, N. J., has awarded the contract for a one-story addition to its plant.

Crescent Enlarging Plant

The Crescent Insulated Wire & Cable Co., Olden and Taylor Streets, Trenton, N. J., has awarded the contract for a three-story, 83 x 103 ft. cable factory, to cost approximately $100,000.

Goodyear Balloon Test Building

The Goodyear Tire & Rubber Co., Akron, Ohio, has awarded the contract for the construction of a one-story balloon testing building, to cost $100,000.

Phoenix Planning Buildings

The Phoenix Rubber Co., Wringley Street, Akron, Ohio, is having plans prepared by Bornisch, Kraus & Helmkampf, architects, 316-17 Ohio Building, for a one-story, 50 x 100 ft. warehouse, and a one-story, 30 x 30 ft. work shop. Estimated cost, $18,000.

A. Dubosc, Editor French Rubber Journal

André Dubosc, the well-known French rubber chemist and a contributor to THE RUBBER AGE AND TIRE NEWS, has been made editor-in-chief of the French rubber journal *Le Caoutchouc et la Gutta Percha*.

French Society of Chemical Industry

No other science has played so important a part in the war as chemistry in its various applications. The French chemical industry has made tremendous strides in the last four years, and to help and insure the continuity of this effort several leading men in the industry, headed by Paul Kestner, have been successful in establishing a society of chemical industry, which includes in its membership the whole chemical industry of France. The *Société de Chimie Industrielle de France*, as the new association is called, recognizing the necessity of a medium to keep its members in constant touch with each other and with developments in industrial chemistry, has established a publication, called *Chimie et Industrie*, the first issue of which has been printed and distributed in 30,000 copies. This journal of the French Chemical Society plans to treat a multitude of subjects of interest to chemists, among them the subject of rubber chemistry. Mr. Fric, manager of the laboratories of Les Etablissements Bergougnan, Clermont-Ferrand, France, one of the largest rubber manufacturing companies of France, will edit the Rubber Department of *Chimie et Industrie*, and will write on the following subjects:

Natural rubbers; rubber latex and its normal constituents; coagulation and the treatment of rubber latex; analysis of crude rubber and of its constituent parts, resins, proteins, etc.

Synthetic rubbers and the carbides from which they can be obtained: the physical and chemico-physical properties of rubber; vulcanization, various methods of curing rubber; accelerators; mineral and organic compounding materials; rubber solvents.

Manufactured rubber (soft and hard rubber goods); physical, chemical and chemico-physical tests; rubber testing machinery; rubber factory equipment; methods for analyzing manufactured rubber.

Rubber reclaiming, gutta percha, balata and similar gums will also be subjects for treatment in this department.

L. Clément and C. Rivière, the well-known French chemical engineers, will handle the department for plastic material and artificial textiles.

The *Société de Chimie Industrielle* recently organized an important American section in New York. The president of this section is Dr. Backeland, the Belgian chemist, know the world over as the inventor of Bakelite.

National India Co. Improves Wharf

Plans have been completed for the improvement of the public wharf at the foot of Church Street, Providence, R. I., by the National India Rubber Co. The wharf will have a large coal pocket in which to carry fuel for the National India Rubber Co. factory, where barges are to be unloaded. The wharf has not been in general use for many years.

Todd Rubber Co. Chartered

The Todd Rubber Co. has been incorporated in New Haven, Conn., with $300,000 capital to conduct a chain of rubber, tire and automobile stores. The president and treasurer is Eyler J. Todd. The company already has ten stores in Connecticut and recently opened a branch in Boston, Mass.

New York Belting to Enlarge Plant

The New York Belting & Packing Co., 91 Chambers Street, New York, has awarded the contract for a two-story addition to its plant on Passaic Street, Passaic, N. J.

New Rubber Factory for Montreal

J. I. Chounard, 330 Notre Dame Street, E., Montreal, Quebec, Canada, manufacturers of rubbers, is planning the erection of a new factory, to cost $100,000.

Central Rubber Buys Factory

The Central Rubber Co. of Defiance, Ohio, is reported to have purchased the factory buildings of the Diamond Glass Co., at East Defiance, Ohio, in which it will establish a plant.

Harmon Receiving Bids

The Harmon Rubber & Manufacturing Co., 1414 Harmon Place, Minneapolis, Minn., is receiving bids for a two-story, 60 x 104 ft. factory.

J. F. O'Brien with General Asbestos Co.

J. F. O'Brien, 58 Warren Street, New York, has been appointed New York representative of the General Asbestos & Rubber Co., Charleston, S. C.

Standard Underground Plans Addition

The Standard Underground Cable Co., Westinghouse Building, Pittsburgh, Pa., has acquired a site on Pike Street, in that city, and plans to build an addition to its plant.

Lynn Building in Warren

The Lynn Rubber Manufacturing Co., Lynn, Mass., is building a new rubber factory in Warren, R. I.

B. & W. Rubber to Build

The B. & W. Rubber Co., 419 Second National Building, Akron, Ohio, plans to build a plant to include four units. The first unit will consist of a building, 60 x 200 feet, three stories high. The architect is F. W. Hogloch, 535 Akron Savings Bank and Loan Building, and the estimated cost is $250,000.

A. D. Beach with Cadillac

A. D. Beach, formerly manager of the Hood Rubber Co.'s St. Louis, Mo., branch, has been made territorial representative of the Cadillac Automobile Co., St. Louis, Mo.

Collyer to Erect New Plant

The Collyer Insulated Wire Co., 249 North Main Street, Pawtucket, R. I., has had plans prepared by C. A. Bell, architect, for a three story, 83 x 170 ft. plant, to be erected at 249 North Main Street, and to cost $80,000.

American Rubber Patents

GRANTED MAY 7, 1918.

1,264,903—To Thomas H. Depew, Pittsburgh, Pa. Shoe for tires.

1,264,957—To Augusta V. Mitchell, Washington, D. C. Combined tire and rim for wheels.

1,264,969—To Joseph E. Perrault, Belmont, Mass. Demountable tire.

1,264,974—To Joseph H. Reeder, St. Louis, Mo. Vulcanizer.

1,264,984—To Charles P. Skublin, Detroit, Mich., assignor to William A. Adams, Detroit, Mich. Tire pump.

1,265,032—To William E. Andrew, Atlantic Highlands, N. J. Resilient tire.

1,265,036—To Tom Bendelow, Chicago, Ill., assignor to Thomas E. Wilson & Co., Chicago, Ill. Golf ball.

1,265,108—To Paul Pickl, Chicago, Ill., assignor to Emma Pickl, Chicago, Ill. Method of making a hard-rubber substitute and the product thereof.

1,265,243—To Russell Parker, Brooklyn, N. Y., assignor to Parker, Stearns & Co., Brooklyn, N. Y. Garment supporter.

1,265,310—To John W. Dutton, Jr., Stockton, Cal. Demountable rim.

1,265,403—To Frank R. Turner, Dorchester, Mass. Cross-chain for tires.

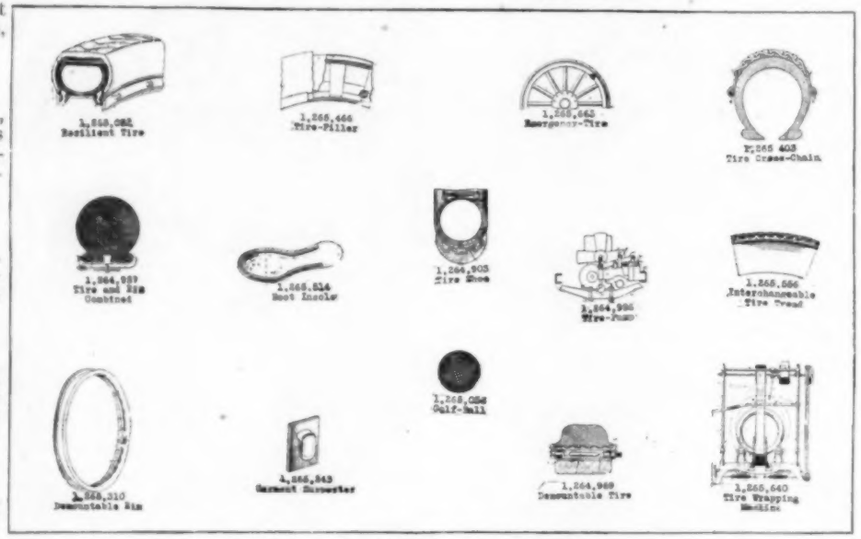
1,265,466—To Lemuel McKinnon, Salt Lake City, Utah. Tire filler.

1,265,514—To Arthur Racicot and Alexander Racicot, Webster, Mass. Boot insole.

1,265,556—To William I. Varner, Athens, Ga. Interchangeable tire tread.

1,265,640—To Albert Fisher, Lincoln, Neb. Tire-wrapping machine.

1,265,666—To Frank Jarvis, Kings Park, N. Y. Emergency tire.



Recent Incorporations

Columbia Tire Co., Rochester, N. Y.; capital, $5,000. Incorporators: H. L. Sarachan, D. Goldman, I. Gordon, all of Rochester.

Hardman Tire & Rubber Co. of New York, have reduced capital from $15,000 to $3,000.

Norwood Tire Co., Long Branch, N. J.; capital, $2,000. Incorporators: David Peskowsky, Hyman Peskowsky, Bennet Peskowsky.

Litnum Metal Fabric Tire Co., Dover, Del.; capital, $1,000,000. To manufacture metal fabric for all purposes, especially for automobile tires. Incorporators: A. Littman, Herman E. Mueller, John B. Lange.

Anderson Tire Securities Corp., Wilmington, Del. Incorporators: W. F. O'Keefe, G. G. Stiegler and J. H. Dowdell.

Cleveland Flexible Steel Tire Co., Cleveland, Ohio; capital, $5,000. Incorporators: G. O. Bell and J. Taylor.

Falls Tire & Repair Co., Cuyahoga Falls, Ohio; capital, $8,000. Incorporators: James E. Carter and K. H. Crock.

I. & R. Double Thread Tire Co., Indianapolis, Ind. To engage in selling, double treading, repairing and exchanging automobile tires.

The Industry Works and Gives

Akron, the rubber manufacturing center of the world, now enjoys another distinction besides that of supplying the country with the score or more of rubber products that are absolutely essential in the winning of the war. The workers in the rubber factories, who make up the vast majority of Akron residents—and most of them foreign born—have just ended another campaign for war relief funds with a tremendous oversubscription.

The last campaign, by the way, ends all solicitation for war relief funds among the Rubber City population for the rest of the year.

Summit County, in which Akron is located, set out a week or so ago to raise a War Chest fund of $1,500,000 which was to take care of the Red Cross, Y. M. C. A., K. of C., Jewish Societies, Hebrew Societies and so on, in the war relief work. Obviously the bulk of the responsibility fell on Akron.

In spite of the fact that thousands of the foreign workmen in the city were still in the midst of paying for their Liberty Bonds, they entered into the War Chest Campaign with a zest that would gladden the heart of any American. When the week's campaign was over a total of $2,373,734 had been raised and within a few days more the figures reached the amazing proportions of $2,500,000.

As an example of how the rubber workers turned out, the case of the Miller Rubber Co., manufacturers of Miller tires and sundries, is interesting. Every man and woman employed in the whole factory and in the offices contributed to the cause. A total of $71,000 was obtained from 3200 Miller employes—an average per person of approximately $22. Some of the other institutions had an almost equally high average.

And, all the time these loyal workmen were digging down into their pockets for the relief fund, they were also turning out the following for Uncle Sam's fighters: dirigible balloons, observation balloons, kite balloons, airplane tires, motor truck tires, automobile tires, artillery wheel tires, gas masks, rubber clothing, rubber boots and shoes, telephone cable, rubber hospital supplies, rubber surgical supplies, submarine battery jars, rubber matting for navy, rubber hose, valve packing and many other necessaries of war.

TIRE NEWS

Standardization of Motor Trucks and Tires

At a recent meeting of the Tire and Rim Division of the Society of Automotive Engineers, a review was presented showing that of 45 different makes of trucks, the sizes in common use are as follows, according to the *S. A. E. Bulletin:*

Assuming the popular capacities marked * would satisfy commercial requirements, the list would be: ¾ ton, 1¼ ton, 2 ton, 3½ ton, 5 ton, and 7 ton.

This naturally brings up three questions. First, in view of the list in Table I, showing thirteen different sizes of trucks in use at the present time, covering a range from ¾ to 7 tons, is it advisable to adopt a limited series of six sizes similar to the suggestions in Table II?

Second, are definite sizes recommended, as shown in Table II, so as to simplify the tire list? This suggested simplification is in line with the desires of the Commercial Economy Board of the Council of National Defense.

Third, is the simplified series of pneumatic tire sizes listed in the bottom section of Table III advisable?

Believing that some of these sizes are really superfluous, it was suggested to standardize trucks according to the load capacity. The basis tentatively selected comprised the following sizes: ¾, 1¼, 2, 3½, 5 and 7 tons.

It was further suggested that any standard which might be worked out include maximum average and minimum weights for front and rear ends of the truck. Proposals along this line are indicated in Table II. The proposed standardized sizes of pneumatic tires are shown in Table III.

The need for solid tire standardization was pointed out, J. E. Hale, acting chairman of the committee, mentioning the case of the 2-ton truck as an example of present conditions.

Front—34 x 3½, 36 x 3½, 34 x 4, 36 x 4.

Rear—34 x 3½ dual, 36 x 3½ dual, 36 x 4 dual, 34 x 5 single, 34 x 6 single, 36 x 6 single, and 36 x 7 single.

At the request of the Commercial Economy Board, the War Service Committee of the Rubber Association has recommended the adoption of the schedule of tire and rim sizes indicated in the lower section of Table III. The adoption of the schedule if the automobile industry cooperates will reduce the number of sizes and styles manufactured and carried in stock by both tire manufacturers and their customers from approximately 200 to 28, and there will be but seven sizes of rims and nine sizes of tires, adequate to equip with pneumatic tires any motor vehicle up to the 2-ton truck.

This simplification of sizes, according to the Commercial Economy Board, will conserve space in ship bottoms now wasted in the importation of excess crude rubber, utilize manufacturing facilities to the best advantage, and reduce capital invested in materials and products.

TABLE I—RANGE OF PRESENT TRUCK SIZES

Capacity in Tons	¾*	1	1¼*	1½	2*	2½	3	3½*	4	4½	5*	6	7*
Number of companies making each size..	9	24	3	17	35	7	8	24	8	1	25	5	5

TABLE II—PROPOSED STANDARDS FOR TRUCK CAPACITIES AND FOR CORRESPONDING TIRE EQUIPMENT

Rated Load Capacity of Truck in Tons	Front End of Truck			Rear End of Truck		
	Average Total Weight on Both Tires, lb.	Tire Equipment		Average Total Weight on Both Tires, lb.	Tire Equipment	
		Solids	Pneumatics		Solids	Pneumatics
¾	1500	.....	34x4½	3,200	.....	36x 6
1¼	2200	36x3½	35x5	4,800	36x6	38x 7
2	3000	36x4	36x6	7,000	36x7	40x 8
3½	4500	36x5	38x7	11,000	40x5D	44x10
5	5500	36x6	.....	15,000	40x6D	.....
7	7500	36x7	.....	20,000	40x7D	.....

Notes: Weights given include chassis, average heavy body and full rated load. These figures apply irrespective of wheelbase. Pay load uniformly distributed in body.

TABLE III—RANGE OF PNEUMATIC TIRE SIZES REQUIRED BY AMERICAN CARS BEING MANUFACTURED IN 1918

Rim Dia., In.	Tire Widths, In.							
	3	3½	4	4½	5	6	7	8
23		30x3½ ← fits	31x4 ← fits	33x4½ ← fits	32x5 ← fits			
24	30x3 ← fits	31x3½ ← fits	32x4 ← fits	33x4½ ← fits		36x6	38x7	40x8
25		32x3½ ← fits	33x4 ← fits	34x4½ ← fits	35x5 ← fits			
26			34x4 ← fits	35x4½ ← fits		Note: A few 36x5½ tires not shown here are used on one car.		
27				36x4½ ← fits	37x5 ← fits			

PROPOSED SIMPLIFIED SCHEDULE OF TIRE SIZES

Rim Dia., In. and Mm.	Tire Widths, In. and Mm.						
	3½-90	4-105	4½-120	5-135	6-150	7-175	8-200
23 — 585	30x3½ ← fits	31x4 ← fits					
24 — 610					36x6	38x7	40x8
25 — 635	32x3½	33x4	34x4½	35x5 ← fits			

Explanation:—
Tires fitting the 23-in. rims are for Ford passenger cars.
Tires fitting the 24-in. rims are the sizes required by pneumatic-tired trucks.
Tires fitting the 25-in. rims are for all passenger cars other than Fords (or cars in the same class).

The Tire Price Situation

Still More Manufacturers Advance Tire Prices—Talk of Further Increases and of Government Regulation of Prices Continues—Shortage of Labor One of Manufacturers' Chief Difficulties—Manufacture of Certain Sizes to Be Discontinued

On June 1 other manufacturers joined in the general movement and increased their tire prices on an average from 5 to 10 per cent. There continue to be persistent rumors that a new general increase in prices will be necessary before long because the recent advance was inadequate. At the present time the main difficulty manufacturers are having appears to be the shortage of labor. Generally speaking, raw materials are plentiful.

Regarding the possibility of obtaining certain sizes of tires due to the recent action to reduce the manufacture of automobile tires to six standard sizes, the plan has been worked out to guard against any such trouble and most of the sizes to be eliminated will not be discarded until the latter part of next year. Only sizes that are practically obsolete will disappear from the market as soon as the present supply is exhausted. The present scarcity of some large sizes is due to the large Government demand for these.

The following new price lists for tires and tubes supplement those published in the May 10 and 25 issues of THE RUBBER AGE AND TIRE NEWS:

The American Rubber & Tire Co.

AKRON, OHIO.
May 1, 1918.

Size.	Ribbed Tread.	Non-Skid Tread.	Tubes. Gray.	Tubes. Red.
28x3	....	$17.50	$3.35	$4.50
30x3	$17.60	18.50	3.45	4.60
30x3½	22.50	23.50	4.20	4.60
31x3½	24.30	25.30	4.30	4.70
32x3½	28.25	29.25 5-ply	4.35	4.80
34x3½	....	....	4.45	4.90
31x4	35.55	36.65	5.35	5.90
32x4	36.30	37.40	5.45	6.00
33x4	38.15	39.25	5.65	6.20
34x4	39.00	40.10	5.80	6.40
35x4	....	....	5.95	6.60
36x4	....	....	6.10	6.80
32x4½	....	50.00	6.75	7.45
33x4½	....	51.60	6.90	7.60
34x4½	....	53.25	7.05	7.75
35x4½	....	55.65	7.25	8.00
36x4½	....	56.50	7.50	8.25
37x4½	....	59.00	7.75	8.55
35x5	....	65.35	8.80	9.70
36x5	....	66.35	8.95	9.85
37x5	....	69.25	9.10	10.00
37x5½	....	....	10.40	11.50
38x5½	....	....	10.65	11.70

The American Tire & Rubber Co.

MANSFIELD, OHIO.
April 22, 1918.

Size.	Plain.	Non-Skid.	Tubes. Gray.	Tubes. Red.
28x3	$15.20	$15.95	$3.25	$3.65
30x3	15.60	16.40	3.30	3.70
32x3	19.00	....	3.75	4.20
30x3½	20.30	21.25	4.15	4.60
31x3½	21.40	22.40	4.20	4.70
32x3½	23.65	24.70	4.25	4.75
34x3½	30.70	32.15	5.00	5.55
36x3½	34.30	....	5.30	5.90
30x4	32.85	....	5.45	6.05
31x4	31.10	32.65	5.25	5.85
32x4	31.70	33.20	5.35	5.95
33x4	33.15	34.80	5.50	6.10
34x4	33.90	35.65	5.65	6.25
35x4	40.90	42.90	6.35	7.10
36x4	36.10	37.95	6.05	6.70
37x4	43.60	....	6.75	7.50
33x4½	....	46.55	6.75	7.50
34x4½	45.75	48.00	6.90	7.70
35x4½	47.80	50.20	7.10	7.85
36x4½	48.60	51.10	7.30	8.10
37x4½	50.50	53.10	7.55	8.40
35x5	54.50	57.25	8.60	9.55
36x5	63.65	66.80	9.45	10.45
37x5	57.80	60.70	8.90	9.85

The Ardmore-Akron Tire & Rubber Co. of Ardmore, Okla.

OKLAHOMA CITY, OKLA.
June 1, 1918.

Size.	Non-Skid.	Plain.	Tubes. Red.	Tubes. Gray.
30x3	....	$21.53	$3.50	$3.05
30x3½	$31.80	26.15	4.50	4.00
31x3½	....	....	4.65	4.10
32x3½	36.80	30.77	4.80	4.30
31x4	44.40	36.02	6.05	5.55
32x4	45.90	37.33	6.30	5.75
33x4	47.25	38.85	6.50	5.95
34x4	48.90	40.06	6.70	6.10
32x4½	....	....	7.95	7.30
33x4½	....	....	8.20	7.50
34x4½	....	....	8.45	7.70
35x4½	60.80	50.82	8.70	7.95
36x4½	....	....	8.95	8.20
35x5	....	....	11.15	10.10
37x5	....	....	11.80	10.70

The Armstrong Rubber Co.

NEWARK, N. J.,
June 1, 1918.

Size.	Fabric Tires. Plain Tread.	Fabric Tires. Non-Skid.	Cord Tires. Plain Tread.	Cord Tires. Non-Skid.	Tubes. Red.	Tubes. Puncture Proof.
30x3	$22.00	$24.10	....	....	$4.40	....
30x3½	26.80	29.50	$38.72	$43.61	5.22	$14.00
31x3½	28.40	31.40	....	....	5.39	....
32x3½	30.80	34.00	41.36	46.58	5.45	15.00
34x3½	34.80	38.40	44.05	49.61	5.70	15.75
30x4	39.40	44.00	....	....	6.40	....
31x4	40.10	44.80	50.82	57.25	6.50	17.00
32x4	41.00	45.80	52.63	59.23	6.60	17.50
33x4	42.50	47.70	54.01	60.83	6.70	17.75
34x4	43.60	48.90	55.49	62.42	6.90	18.00
35x4	48.20	55.90	....	....	7.00	....
36x4	51.50	57.30	....	....	7.20	....
37x4	53.10	59.00	....	....	7.50	....
32x4½	52.80	58.80	59.29	66.71	8.40	21.00
33x4½	54.20	60.30	60.83	68.42	8.50	21.50
34x4½	55.90	62.20	62.42	70.23	8.75	22.00
35x4½	58.60	65.20	63.97	71.94	8.90	22.50
36x4½	59.40	66.20	65.45	73.70	9.25	23.00
37x4½	61.90	68.90	....	....	9.50	....
33x5	64.90	72.20	....	....	10.00	....
34x5	66.40	73.70	....	....	10.23	....
35x5	68.20	76.50	77.66	87.34	10.40	26.50
36x5	69.90	77.80	....	....	10.60	....
37x5	73.10	81.20	81.29	91.52	10.70	27.00

Beacon Tire Co.

BEACON, N. Y.
May 10, 1918.

Size.	Rib-Skid	Red Tubes.
28x3	$14.90	$3.30
30x3	15.50	3.70
30x3½	20.10	4.60
32x3½	23.55	4.75
31x4	30.80	5.85
32x4	31.45	5.95
33x4	32.85	6.10
34x4	33.70	6.25
35x4	34.85	6.50
36x4	35.85	6.70
34x4½	45.45	7.70
35x4½	47.40	7.85
36x4½	48.30	8.10
37x4½	50.15	8.40
34x5	52.05	9.00
35x5	54.15	9.55
36x5	55.05	9.75
37x5	57.35	9.85

Bergougnan Tire Corp.

NEW YORK, N. Y.,
June 1, 1918.

Size.	Plain.	Non-Skid.	Tubes.
28x3	$16.30	$17.95	$3.50
30x3	18.20	20.00	3.60
30x3½	23.05	26.25	4.15
31x3½	24.40	26.85	4.50
32.3½8	26.70	29.35	4.60
31x4 8	31.50	34.65	5.65
32x4 8	33.45	36.80	5.85
33x4 8	35.80	39.40	6.15
34x4 8	37.80	41.60	6.30
35x4	38.75	42.60	6.45
36x4	40.75	44.85	6.65
32x4½8	47.35	52.10	7.50
33x4½8	48.45	53.35	7.55
34x4½8	51.20	56.35	7.65
35x4½8	51.85	57.05	7.80
36x4½8	52.40	57.65	8.10
37x4½	54.00	59.40	8.20
33x5 8	58.30	64.10	8.65
34x5 8	59.40	65.30	8.90
35x5 8	60.50	66.55	9.10
36x5 8	61.75	68.02	9.35
37x5 8	63.50	69.80	9.55
37x5½	81.75	89.95	10.40
38x5½	84.65	93.07	10.55

Batavia Rubber Co.

BATAVIA, N. Y.,
May 1, 1918.

Size.	Plain Tread.	Ribbed Tread.	Security Tread.	Gray Tubes.
28x2¾	....	....	$14.95	$2.75
28x3	....	....	15.85	3.25
30x3	$15.80	....	18.50	3.35
30x3½	20.05	....	23.50	3.80
31x3½	....	....	25.30	4.00
32x3½	23.50	$26.05	27.45	4.20
34x3½	....	29.60	31.20	4.50
31x4	....	....	36.65	5.40
32x4	31.95	35.55	37.40	5.55
33x4	33.50	37.30	39.25	5.75
34x4	34.30	38.05	40.10	5.90
35x4	....	39.80	41.90	6.00
36x4	....	40.40	42.55	6.10
32x4½	....	47.45	50.00	7.15
33x4½	....	49.00	51.60	7.25
34x4½	....	50.60	53.25	7.30
35x4½	....	52.90	55.65	7.40
36x4½	....	53.60	56.50	7.60
37x4½	....	56.05	59.00	7.80
38x4½	....	....	71.40	8.20
35x5	....	62.05	65.35	8.90
36x5	....	....	66.35	9.05
37x5	....	65.80	69.25	9.25
39x5	....	....	86.35	9.40
36x5½	....	....	102.20	9.85
37x5½	....	....	106.95	10.10
38x5½	....	....	108.90	10.40

The Be Saw Tire & Rubber Co.

HARTVILLE, OHIO.
June 1, 1918.

Size.	Blackford Tires.	Be Sa Plain	Be Sa Non-Skid
30x3	$15.70	$20.50	$24.25
30x3½	19.95	24.90	30.30
31x3½	21.35	27.65	31.35
32x3½	23.60	29.30	35.05
31x4	31.50	34.30	42.30
32x4	32.05	35.55	43.70
33x4	33.90	36.90	45.00
34x4	33.90	38.15	46.55
35x4	....	39.30	48.10
36x4	....	40.50	57.05
34x4½	....	46.95	54.60
35x4½	48.60	48.40	57.90
35x4½	....	49.70	62.75
37x4½	....	51.10	64.10
35x5	....	57.80	71.35
36x5	....	69.40	74.15
37x5	....	60.90	75.90

Cortland Tire & Rubber Co.

BELLEVILLE, N. J.,
May 15, 1918.

Size.	"CC" Cortland Plain.	"CC" Cortland Non-Skid.	Cortland Yankee Plain.	Cortland Yankee Non-Skid
30x3	$15.50	$16.35	$21.60	$23.95
30x3½	20.20	21.15	29.50	29.50
31x3½	21.90	22.95	28.50	31.65
32x3½	23.60	24.75	30.50	33.80
34x3½	26.15	27.40	33.00	36.50
31x4	30.95	32.40	39.25	43.55
32x4	31.60	33.15	41.35	45.95
33x4	33.05	34.55	42.35	47.10
34x4	33.75	35.45	43.50	48.25
35x5	34.70	36.20	44.55	49.50
36x4	35.55	36.60	45.65	50.60
32x4½	42.85	45.05	51.15	56.90
33x4½	44.05	46.25	52.30	58.10
34x4½	45.45	47.80	53.35	59.25
35x4½	47.60	49.90	56.25	62.45
36x4½	48.35	50.85	60.40	67.10
37x4½	49.25	52.00	63.20	70.20
34x5	52.65	55.40	69.70	77.45
35x5	54.30	57.05	71.70	79.60
36x5	55.95	58.20	73.75	81.65
37x5	57.50	60.40	75.75	84.15
36x5½	73.15	75.60	87.65	97.35
37x5½	75.60	78.65	89.60	99.55
38x5½	77.95	81.95	91.60	101.7

The Dry Climate Tire Mfg. Co.

ARVADA, COLO.,
May 15, 1918.

Size.	Plain List.	Non-Skid List.	Tubes. Red.	Tubes. Gray.
28x3	....	....	$3.35	$3.25
30x3	$15.80	$18.50	4.35	3.35
30x3½	20.05	23.50	4.95	3.90
31x3½	....	....	5.05	4.00
32x3½	23.50	27.45	5.45	4.20
34x3½	....	....	5.90	4.60
31x4	31.30	36.65	7.05	5.40
32x4	31.95	37.40	7.25	5.55
33x4	33.50	39.25	7.45	5.80
34x4	34.30	40.10	7.65	5.90
35x4	....	....	7.75	6.00
36x4	....	....	7.95	6.15
32x4½	....	....	9.30	7.15
33x4½	....	....	9.45	7.30
34x4½	45.50	53.25	9.60	7.40
35x4½	47.65	55.65	9.75	7.50
36x4½	48.35	56.50	9.85	7.65
37x4½	....	....	10.20	7.85
35x5	....	....	11.55	8.95
36x5	56.70	66.35	11.80	9.15
37x5	59.20	69.25	12.05	9.30

Curtis Tire & Rubber Co.

MUSKEGON, MICH.,
May 11, 1918.

Size.	Plain Tread.	Special Road Type	Gray.	Red.
28x3	$19.10	$22.75	$3.35	$3.65
30x3	19.45	23.00	3.45	3.85
30x3½	25.40	27.25	4.00	4.45
32x3½	29.00	36.30	4.15	4.55
31x4	33.85	43.75	5.40	6.05
32x4	35.10	45.25	5.65	6.20
33x4	36.40	46.60	5.80	6.45
34x4	37.65	48.30	5.90	6.55
36x4	40.00	50.80	6.15	6.80
34x4½	46.35	56.45	7.35	8.15
35x4½	47.80	58.20	7.55	8.30
36x4½	49.10	63.15	7.75	8.65
37x4½	50.40	65.00	8.00	8.80
35x5	57.00	71.75	9.00	9.90
36x5	58.60	73.25	9.30	10.20
37x5	60.15	78.45	9.40	10.30

Defiance Tire & Rubber Co.

CHICAGO, ILL.,
June 1, 1918.

Size.	Defiance Brand. Plain Tread.	Tiger. Tread.	Tubes. Gray.	Red.	Double Wall.
28x3	$15.25	$16.75	$3.30	$3.65	$4.60
30x3	15.20	16.70	3.35	3.75	4.65
30x3½	19.60	21.50	4.15	4.55	5.45
31x3½	20.50	22.55	4.30	4.75	5.65
32x3½	22.95	25.25	4.35	4.80	5.85
34x3½	26.75	29.40	4.75	5.60	6.45
31x4	30.25	33.25	5.30	5.90	7.30
32x4	30.75	33.80	5.45	6.00	7.60
33x4	32.00	35.20	5.50	6.10	7.85
34x4	32.90	36.20	5.75	6.35	8.05
35x4	34.75	38.20	6.25	7.20	8.55
36x4	35.50	39.00	6.50	7.30	8.65
34x4½	43.90	48.30	6.95	7.75	9.90
35x4½	46.25	50.85	7.25	8.00	10.15
36x4½	46.90	51.60	7.35	8.20	10.55
37x4½	47.95	52.75	8.25	9.40	10.80
35x5	52.50	57.75	....	....	....
36x5	55.00	60.50	9.50	9.95	12.20
37x5	55.75	61.30	8.95	10.10	12.65

Defiance Tire & Rubber Co.

CHICAGO, ILL.,
June 1, 1918.

Size.	Arabian Brand. Fluted Tread.	Non-Skid.	Gray Tubes.
28x3	....	....	$3.30
30x3	$16.70	$17.90	3.35
30x3½	21.55	23.00	4.15
31x3½	....	....	4.30
32x3½	25.25	27.00	4.35
34x3½	....	....	4.75
31x4	33.25	35.55	5.30
32x4	33.80	36.15	5.45
33x4	35.20	37.65	5.50
34x4	36.20	38.70	5.75
35x4	....	....	6.25
36x4	39.00	41.75	6.50
34x4½	48.30	51.65	6.95
35x4½	50.85	54.40	7.25
36x4½	51.60	55.20	7.35
37x4½	52.75	56.45	8.25
36x5	....	....	9.50
37x5	61.30	65.60	8.95

The Diamond Rubber Co.

AKRON, OHIO,
May 8, 1918.

Size.	Smooth Tread.	Squeegee Tread.	Gray Tube.	Red Tube.
30x3	$15.55	$16.30	$3.40	$3.75
30x3½	20.20	21.10	4.25	4.70
31x3½	21.25	22.30	4.35	4.80
32x3½	23.45	24.55	4.50	4.95
31x4	30.95	32.40	5.50	6.05
32x4	31.55	33.20	5.65	6.20
33x4	33.00	34.60	5.80	6.40
34x4	33.70	35.40	5.95	6.55
33x4½	44.05	46.25	7.25	8.00
34x4½	45.50	47.75	7.30	8.05
35x4½	47.50	49.90	7.45	8.20
36x4½	48.25	50.70	7.75	8.50
35x5	54.25	56.90	9.10	10.00
37x5	57.50	60.35	9.40	10.35

The Federal Rubber Co. of Illinois

CUDAHY, WIS.,
May 10, 1918.

Size.	Fabric Casings. Plain Tread.	Traffik Tread.	Rugged Tread.	Cord Casings. Straight-Non-Skid Wall.	Tubes. Gray.	Red.
28x3	$15.00	$15.75	$17.85	....	$3.00	$3.60
30	15.80	16.60	18.80	....	3.00	3.60
30x3½	20.60	21.50	24.45	....	3.75	4.50
31	21.60	22.70	....	....	3.85	4.60
32	23.85	25.05	28.15	$45.20	4.00	4.80
34	25.45	26.70	30.00	....	4.30	5.15
31x4	31.45	33.00	38.40	....	4.85	5.80
32	32.10	33.65	39.05	57.45	5.00	6.00
33	33.60	35.30	41.15	58.90	5.15	6.20
34	34.45	36.10	42.00	60.55	5.25	6.30
35	35.85	37.65	43.80	....	5.65	6.80
36	36.55	38.40	44.65	....	5.65	6.80
33x4½	44.85	47.10	54.05	....	6.40	7.70
34	46.30	48.65	55.85	68.30	6.45	7.75
35	48.40	50.85	58.40	69.90	6.60	7.90
36	49.15	51.65	59.25	71.50	6.85	8.20
37	51.15	53.70	61.70	....	7.10	8.50
35x5	55.25	58.00	66.30	84.75	8.00	9.60
37	58.35	61.55	70.20	88.70	8.30	9.95

The Fisk Rubber Co. of N. Y.

CHICOPEE FALLS, MASS.,
May 10, 1918.

Size.	Fabric. Plain Tread.	Non-Skid.	Red Top.	Cord. Ribbed.	Non-Skid.	Gray Tube.
28x3	$15.40	$16.20	....	....	....	$3.25
30x3	16.15	17.00	$19.10	....	....	3.25
30x3½	20.95	22.00	24.75	....	....	4.00
31x3½	22.10	23.20	....	....	....	4.15
32x3½	24.55	25.75	29.00	....	$44.50	4.25
31x4	32.20	33.80	38.05	....	....	5.00
32x4	32.75	34.40	38.70	....	56.55	5.45
33x4	34.30	36.00	40.50	....	58.05	5.45
34x4	35.10	36.85	41.45	55.50	59.60	5.75
33x4½	45.75	48.05	....	....	65.35	6.95
34x4½	47.20	49.55	55.75	62.45	67.05	7.25
35x4½	49.45	51.90	58.40	63.95	68.65	7.25
36x4½	50.25	52.75	....	65.45	70.35	7.50
35x5	56.45	59.25	....	77.65	83.40	8.90
37x5	59.75	62.75	....	81.30	87.40	9.25
36x6	....	....	....	....	109.45	12.50
38x7	....	....	....	....	154.75	25.05
40x8	....	....	....	....	199.45	32.35

The General Tire & Rubber Co.

AKRON, OHIO,
April 29, 1918.

Size.	Fabric. Plain Tread.	Non-Skid.	Cord. Rib Tread.	Non-Skid.	Tubes Gray.	Red.
28x3	....	$20.20	....	....	$3.40	$3.90
30x3	$18.95	21.50	....	....	3.50	3.95
30x3-3½	....	....	....	....	3.90	4.85
30x3½	23.15	27.25	....	....	4.05	4.95
31x3½	....	29.35	....	....	4.30	5.10
32x3½	28.80	32.40	$42.30	$44.50	4.60	5.30
34x3½	32.75	37.00	....	....	4.90	5.65
31x4	37.60	42.50	....	....	5.80	6.75
32x4	38.15	43.35	53.85	56.55	6.00	6.95
33x4	40.50	45.80	55.25	58.00	6.15	7.35
34x4	41.20	46.65	56.75	59.60	6.35	7.55
35x4	42.75	49.05	....	....	6.70	7.70
36x4	43.35	49.85	....	....	6.95	8.20
37x4	....	....	....	....	7.25	8.45
32x4½	....	....	60.65	63.70	7.80	8.55
33x4½	....	57.40	62.20	65.35	8.00	8.80
34x4½	50.70	59.00	63.85	67.05	8.05	9.00
35x4½	53.13	62.10	65.40	68.75	8.25	9.25
36x4½	55.30	63.00	66.95	70.35	8.55	9.55
37x4½	58.80	65.65	....	....	9.00	10.40
38x4½	....	....	....	....	9.15	10.40
35x5	65.35	73.35	79.40	83.40	9.75	10.50
36x5	67.10	76.40	....	....	10.00	10.65
37x5	67.55	77.45	83.15	87.40	10.20	10.95
38x5½	....	....	....	....	11.65	13.35
39x6	....	....	....	....	13.15	13.35

Giant Tire & Rubber Co.

FINDLAY, OHIO,
May 1, 1918.

Size.	Smooth.	Non-Skid
30x3	$9.85	$10.25
30x3½	11.70	12.50
32x3½	....	13.70
31x4	....	14.05
32x4	....	14.50
33x4	....	16.30
34.4	....	17.55
36.4	....	18.75
34x4½	....	22.30
35x4½	....	24.05
36x4½	....	25.50
37x5	....	28.75

The B. F. Goodrich Co.

AKRON, OHIO,
May 8, 1918.

Size.	Fabric. Smooth Tread.	Safety Tread.	Tubes Gray.	Red.
28x3	$15.60	$16.40	$3.50	$3.85
30x3	15.20	15.85	3.45	3.80
29x3½	21.30	22.30	4.45	4.90
30x3½	19.60	20.65	4.20	4.60
30x3½	21.55	22.70	4.20	4.60
31x3½	20.70	21.80	4.30	4.75
32x3½	23.05	24.25	4.35	4.80
34x3½	26.90	28.15	5.10	5.60
36x3½	28.50	29.90	5.40	5.95
31x3¾	....	23.60	5.30	5.80
30x4	32.00	33.60	5.55	6.10
31x4	30.25	31.75	5.35	5.90
32x4	33.90	35.55	5.45	6.00
32x4	30.80	32.30	5.45	6.00
33x4	35.35	37.05	5.65	6.20
33x4	32.15	33.70	5.65	6.20
34x4	36.25	38.00	5.80	6.40
34x4	32.95	34.55	5.80	6.40
35x4	37.50	39.40	6.55	7.20
36x4	38.60	40.50	6.75	7.45
37x4	39.70	41.70	6.90	7.60
32x4½	41.75	43.85	6.70	7.35
32x4½	45.95	48.25	6.70	7.35
33x4½	47.20	49.55	6.90	7.60
33x4½	42.90	45.05	6.90	7.60
34x4½	48.80	51.25	7.05	7.75
34x4½	44.35	46.60	7.05	7.75
35x4½	51.05	53.45	7.25	8.00
35x4½	46.40	48.60	7.25	8.00
36x4½	51.80	54.35	7.50	8.25
36x4½	47.10	49.40	7.50	8.25
33x5	....	52.40	8.45	9.30
33x5	....	57.65	8.45	9.30
35x5	58.20	61.10	8.80	9.70
35x5	52.90	55.55	8.80	9.70
36x5	59.80	62.90	9.70	10.65
37x5	61.50	34.70	9.10	10.00
37x5	55.90	58.80	9.10	10.00
38x5½	75.85	79.55	10.65	11.70

SILVERTOWN (CORD TIRES)

Size.	Straight Side Type Ribbed Tread.	Safety Tread.	Quick Detachable Clincher Type Ribbed Tread.	Safety Tread.	Tubes Gray.	Red.
32x3½	$39.30	$41.25	$41.35	$43.40	$4.35	$4.80
32x4	50.00	52.50	52.65	55.30	5.45	6.00
33x4	51.30	53.85	54.00	56.70	5.65	6.20
34x4	52.75	55.40	55.50	58.30	5.80	6.40
36x4	....	....	58.70	....	6.75	7.45
32x4½	56.35	59.15	59.30	62.25	6.70	7.35
33x4½	57.80	60.70	60.85	63.90	6.90	7.60
34x4½	59.30	62.25	62.40	65.50	7.05	7.75
35x4½	60.75	63.80	63.95	....	7.25	8.00
36x4½	62.20	65.30	65.45	68.70	7.50	8.25
37x4½	....	....	67.00	....	8.55	9.40
33x5	70.35	73.85	74.05	77.75	8.45	9.30
35x5	73.75	77.45	77.65	81.85	8.80	9.70
36x5	....	....	79.90	....	9.70	10.65
37x5	75.25	81.10	81.30	85.35	9.10	10.00
36x5½	....	....	93.25	97.90	9.90	11.00
38x5½	93.65	98.35	98.60	103.55	10.65	11.70

Great Republic Tire & Rubber Mfg. Co.

MUSKOGEE, OKLA.,
May 31, 1918.

Size.	Fabric. Driving Tread.	Non-Skid Tread.	Multi-Cord. Driving Tread.	Non-Skid Tread.	Red.	Gray.
30x3	$16.25	$18.50	....	....	$3.75	$3.40
30x3½	20.70	23.50	....	....	4.55	4.15
32x3½	23.50	27.45	$41.35	$44.50	4.85	4.40
31x4	31.30	36.65	....	....	6.05	5.50
32x4	31.95	37.40	52.65	56.55	6.20	5.65
33x4	33.50	39.25	54.00	58.00	6.50	5.90
34x4	34.30	40.10	55.50	59.65	6.75	6.15
36x4	36.40	42.55	....	....	7.35	6.60
33x4½	44.05	51.60	60.85	65.35	7.85	7.15
34x4½	45.50	53.20	62.45	67.00	8.05	7.30
35x4½	47.65	55.65	63.95	68.75	8.20	7.45
36x4½	48.35	56.50	65.45	70.45	8.45	7.70
37x4½	....	....	....	....	9.10	8.30
35x5	55.80	65.35	77.65	83.40	9.50	8.65
37x5	59.15	69.25	80.30	87.40	9.90	9.00

Hanes Rubber Co.

WINSTON-SALEM, N. C.,
June 1, 1918.

Size.	Plain.	Non-Skid.	Red.
28x3	$15.90	$17.70	$3.70
30x3	16.50	18.30	3.85
30x3½	20.75	23.05	4.50
31x3½	22.55	24.60	4.65
32x3½	24.30	27.05	4.90
34x3½	27.30	30.75	5.20
31x4	30.60	34.65	6.15
32x4	31.15	35.25	6.30
33x4	32.95	37.30	6.55
34x4	33.45	37.95	6.70
35x4	34.75	39.95	6.85
36x4	35.35	40.60	7.15
32x4½	43.80	49.00	8.15
34x4½	45.85	51.45	8.65
35x4½	47.55	53.45	8.90
36x4½	48.30	54.10	9.15
37x4½	50.25	56.15	9.40
35x5	55.95	65.95	9.80
36x5	56.95	67.15	10.00
37x5	59.00	69.40	10.25

Knight Tire & Rubber Co.

CANTON, OHIO,
May 27, 1918.

Size.	Non-Skid.	Ribbed Tread.	Red Tubes.
30x3	$26.35	$23.70	$4.25
30x3½	32.95	29.65	5.35
31x3½	....	....	5.50
32x3½	37.65	33.90	5.70
31x4	45.40	42.55	6.70
32x4	49.50	43.70	6.85
33x4	51.60	44.95	7.10
34x4	52.75	46.20	7.40
35x4	....	....	7.50
36x4	....	....	7.65
37x4	....	....	7.95
32x4½	57.40	....	8.65
33x4½	58.65	....	8.95
34x4½	61.80	55.45	9.20
35x4½	65.50	58.05	9.40
36x4½	71.10	63.95	9.75
37x4½	....	....	10.05
35x5	80.90	72.20	11.05
36x5	....	....	11.25
37x5	86.05	....	11.70
36x5½	117.60	....	13.00
37x5½	....	....	13.35
38x5½	....	....	13.60

The Lion Tire & Rubber Corp.

LAFAYETTE, IND.,
May 15, 1918.

Size.	Ribbed. Clin.	8. 8.	Non-Skid Clin.	Non-Skid Q. D.	Non-Skid 8. 8.	Gray Tubes.
30x3	$18.10	....	$18.65	....	....	$3.80
30x3½	22.35	....	23.50	....	....	4.20
31x3½	....	....	25.30	....	....	4.40
32x3½	....	$26.15	....	$27.50	$27.50	4.65
31x4	34.80	....	36.65	....	....	5.95
32x4	....	....	....	....	37.40	6.15
33x4	....	37.30	....	39.30	39.30	6.35
34x4	....	38.15	....	40.10	40.10	6.50
35x4	....	....	....	....	41.90	6.60
33x4½	....	....	....	....	51.60	7.70
34x4½	....	50.55	....	53.25	....	8.00
35x4½	....	52.85	....	55.65	55.65	8.25
36x4½	....	53.70	....	56.55	....	8.55
37x4½	....	....	....	59.05	59.05	8.80
35x5	....	63.15	....	66.50	66.50	9.80
37x5	68.05	....	....	71.60	71.60	10.20

Marathon Tire & Rubber Co.

CUYAHOGA FALLS, OHIO,
June 1, 1918.

Size.	Runner Tread.	Angle Tread.	Tubes. Red.	Tubes. Gray.	Black Oak Brand.
28x3	.....	$17.00	$3.30	$2.85	.....
30x3	$22.05	22.60	3.50	3.05	$16.00
30x3½	26.85	27.55	4.50	4.00	20.35
31x3½	28.00	28.70	4.65	4.10	21.85
32x3½	31.30	32.05	4.80	4.30	24.25
31x4	40.55	41.65	6.05	5.55	31.75
32x4	41.90	43.00	6.30	5.75	32.45
33x4	43.20	44.35	6.50	5.95	33.80
34x4	44.50	45.65	6.70	6.10	34.80
32x4½	56.25	57.80	7.95	7.30	44.20
33x4½	.....	59.60	8.20	7.50	.....
34x4½	59.90	61.50	8.45	7.70	46.80
35x4½	61.60	63.20	8.70	7.95	48.90
36x4½	63.40	65.00	8.95	8.20	49.80
35x5	74.40	76.20	11.15	10.10	55.90
36x5	76.55	78.45	11.50	10.50	57.55
37x5	78.70	80.70	11.80	10.75	59.20

The Marion Tire & Rubber Co.

MARION, OHIO,
May 1, 1918.

Size.	Plain Tread.	Non-Skid.	Tubes Gray.	Tubes Red.
28x3	$14.60	$16.50	$3.20	.....
30x3	15.80	17.60	....	....
30x3½	20.00	22.50	....	....
	Ribbed Tread.			
30x3	16.85	.....	3.30	$4.20
30x3½	21.60	.....	3.95	4.95
31x3½	22.50	.....	4.05	5.20
32x3½	25.00	27.00	4.10	5.30
31x4	31.50	34.00	5.20	5.70
32x4	33.50	34.75	5.50	6.90
33x4	34.00	36.90	5.70	7.15
34x4	36.00	37.75	5.80	7.30
35x4	.....	39.50	6.00	7.60
36x4	.....	40.25	6.10	7.80
34x4½	49.50	50.75	7.05	8.60
35x4½	50.75	52.25	7.25	9.25
36x4½	51.25	52.75	7.40	9.25
37x4½	.....	54.50	7.80	10.15
35x5	59.50	61.00	8.90	10.45
36x5	.....	62.50	9.00	10.65
37x5	62.75	64.50	9.05	10.90

The Mohawk Rubber Co.

AKRON, OHIO,
May 25, 1918.

Size.	Mohawk Plain Tread.	Mohawk Non-Skid.	Mohawk-Keaton Ribbed Tread.	Mohawk-Keaton Non-Skid.	Tubes.
28x3	$19.70	$23.75	.....	.....	$3.40
30x3	20.70	24.95	$22.20	.....	3.55
30x3	.....	.....	.....	.....	3.80
30x3½	25.25	31.60	27.30	$33.20	4.55
31x3½	27.95	32.75	.....	.....	4.70
32x3½	29.55	36.25	31.95	38.25	4.90
34x3½	32.25	39.55	.....	.....	5.20
31x4	37.45	44.00	40.40	45.90	5.75
32x4	39.65	46.85	43.10	49.35	5.85
33x4	40.80	48.05	44.40	50.65	6.10
34x4	42.30	49.90	45.70	52.55	6.25
35x4	43.70	51.60	.....	.....	6.35
36x4	46.15	54.50	.....	.....	6.55
32x4½	.....	57.50	52.30	60.40	7.35
33x4½	49.65	58.75	.....	.....	7.65
34x4½	52.00	61.35	56.15	65.20	7.85
35x4½	54.20	64.00	58.55	66.40	8.00
36x4½	57.15	67.25	61.90	70.05	8.25
37x4½	58.50	68.85	.....	.....	8.60
35x5	64.85	76.45	70.55	80.90	9.35
36x5	67.40	79.75	.....	83.80	9.65
37x5	69.00	81.50	74.40	84.85	9.95
37x5 Giant	.....	.....	.....	102.60	.....
37x5½	80.00	94.50	.....	99.50	11.40
38x5½	.....	97.50	.....	102.60	11.60

The United Tire & Rubber Co.

MANSFIELD, OHIO,
April 22, 1918.

Size.	Plain.	Non-Skid.	Tubes. Gray.	Tubes. Red.
28x3	$15.20	$15.95	$3.25	$3.65
30x3	15.60	16.40	3.30	3.70
32x3	19.00	....	3.75	4.20
30x3½	20.30	21.25	4.15	4.60
31x3½	21.40	22.40	4.20	4.70
32x3½	23.65	24.70	4.25	4.75
34x3½	30.70	32.15	5.00	5.55
36x3½	34.30	....	5.30	5.90
30x4	32.85	....	5.45	6.05
31x4	31.10	32.65	5.25	5.85
32x4	31.70	33.20	5.35	5.95
33x4	33.15	34.80	5.50	6.10
34x4	33.90	35.65	5.65	6.25
35x4	40.90	42.90	6.35	7.10
36x4	36.10	37.95	6.05	6.70
37x4	43.60	....	6.75	7.50
33x4½	.....	46.55	6.75	7.50
34x4½	45.75	48.00	6.90	7.70
35x4½	47.80	50.20	7.10	7.85
36x4½	48.60	51.10	7.30	8.10
37x4½	50.50	53.10	7.55	8.40
35x5	54.50	57.25	8.60	9.55
36x5	63.65	66.80	9.45	10.45
37x5	57.80	60.70	8.90	9.85

Hawkeye Tire & Rubber Co.

DES MOINES, IA.,
June 1, 1918.

Size.	Santa Fe Brand. Plain.	Santa Fe Brand. Non-Skid.	Hawkeye Brand. Ribbed Tread.	Hawkeye Brand. Non-Skid.	Tubes. Red.	Tubes. Gray.
	$	$	$	$	$	$
28x3	.....	....	23.00	23.00	3.60	3.15
30x3	16.50	17.50	25.30	25.30	3.75	3.20
30x3½	19.75	22.25	32.45	32.45	4.40	3.80
31x3½	.....	.....	.....	.....	4.50	3.95
32x3½	23.25	26.00	37.40	37.40	4.80	4.20
34x3½	.....	.....	.....	.....	5.10	4.50
28x4	.....	32.00	44.00	44.00	5.80	5.00
31x4	30.65	34.75	46.20	46.20	6.10	5.20
32x4	31.50	35.50	47.30	47.30	6.20	5.25
33x4	33.00	37.50	48.95	48.95	6.40	5.55
34x4	34.00	38.50	50.60	50.60	6.60	5.65
35x4	.....	.....	.....	.....	6.75	5.75
36x4	35.50	41.00	53.90	53.90	7.00	5.90
32x4½	.....	47.00	55.00	....	8.00	6.80
33x4½	44.00	49.00	57.75	57.75	8.20	6.95
34x4½	45.25	51.00	60.50	50.50	8.50	7.05
35x4½	47.00	53.00	63.25	63.25	8.75	7.25
36x4½	48.00	54.00	68.75	68.75	9.00	7.55
37x4½	50.00	56.00	70.40	70.40	9.25	7.80
33x5	.....	58.00	74.80	....	9.25	8.20
35x5	55.50	62.50	77.00	77.00	9.50	8.55
36x5	56.00	64.00	79.75	79.75	9.75	8.65
37x5	58.00	65.00	82.50	82.50	10.00	8.75

The Mid-Continent Tire Mfg. Co.

WICHITA, KANS.,
June 1, 1918.

Size.	Ribbed Cord Type.	Non-Skid.	Red or Gray.
30x3	$23.70	$26.35	$4.25
30x3½	29.65	32.95	5.45
32x3½	33.90	37.65	5.70
31x4	42.55	45.40	6.70
32x4	43.70	49.50	6.85
33x4	44.95	51.00	7.10
34x4	46.20	52.75	7.40
32x4½	51.10	57.40	8.65
33x4½	53.95	59.65	8.95
34x4½	55.45	61.80	9.20
35x4½	58.05	65.50	9.40
36x4½	63.95	71.10	9.75
33x5	68.75	76.90	10.65
35x5	72.20	80.90	11.05
37x5	77.35	86.05	11.70

Mutual Tire & Rubber Co.

NEW YORK, N. Y.,
May 10, 1918.

Size.	Octagon Tread.	Red Tubes.
28x3	$25.30	$4.85
30x3	25.60	4.95
30x3½	32.45	6.05
32x3½	38.65	6.30
34x3½	44.15	6.65
31x4	48.20	7.85
32x4	49.10	8.15
33x4	51.85	8.30
34x4	52.80	8.45
35x4	55.55	8.70
36x4	56.45	8.90
32x4½	62.00	10.60
33x4½	64.35	10.75
34x4½	66.50	11.00
35x4½	70.05	11.35
36x4½	72.90	11.50
35x5	83.75	13.30
36x5	87.00	13.50
37x5	89.05	13.55

National Tire & Rubber Co.

EAST PALESTINE, OHIO,
April 22, 1918.

Size.	Record Tires.	Highway Tires.	Capitol Tires. Plain.	Capitol Tires. Non-Skid.	Tubes. Red.	Tubes. Gray.
28x3	.....	$16.35	$15.30	$16.35	$3.85	$3.40
30x3	$15.75	15.00	15.00	16.75	3.75	3.35
30x3 Clin.	....	15.75	....	....	....	....
32x3	....	....	....	....	4.20	3.85
29x3½	....	....	21.30	21.85	4.65	4.00
30x3½	20.20	20.20	19.70	20.20	4.60	3.90
31x3½	....	....	20.45	21.65	4.65	4.25
32x3½	23.90	23.90	22.90	23.90	4.80	4.35
34x3½	....	....	26.55	28.40	5.10	5.00
36x3½	....	....	....	....	5.45	5.15
30x4	....	....	31.90	33.20	5.90	5.45
31x4	31.35	31.35	29.85	31.35	6.05	5.20
32x4	32.10	32.10	30.75	32.10	6.15	5.35
3x4	33.45	33.45	32.05	33.45	6.45	5.50
34x4	34.35	34.35	32.65	34.35	6.70	5.70
35x4	....	....	37.05	38.90	6.85	6.25
36x4	....	....	34.95	36.40	7.00	6.00
37x4	....	....	....	....	7.30	6.55
32x4½	....	....	....	....	7.80	7.15
33x4½	....	....	....	....	7.85	6.95
34x4½	....	....	43.70	46.20	8.05	7.10
35x4½	....	....	45.85	47.90	8.15	7.20
36x4½	....	....	46.60	48.90	8.25	7.35
37x4½	....	....	47.95	50.65	8.50	7.70
34x5	....	....	....	....	10.00	9.05
35x5	....	....	52.45	55.05	9.80	8.80
36x5	....	....	58.45	62.20	10.10	9.35
37x5	....	....	55.55	58.25	9.90	9.00

The Norwalk Tire & Rubber Co., Inc.

NORWALK, CONN.,
May 27, 1918.

Size.	Ribbed and Smooth.	Norwalk Non-Skid.	Tubes. Gray.	Tubes. Red.
28x3	.....	.....	$3.30	$3.65
30x3	$21.70	$22.85	3.35	3.70
32x3	....	....	3.95	4.35
29x3½	.....	.....	4.00	4.55
30x3½	29.40	30.95	4.15	4.60
31x3½	....	32.65	4.25	4.65
32x3½	....	35.55	4.40	4.80
34x3½	....	....	5.20	5.75
36x3½	....	....	5.30	6.00
31x4	....	43.15	5.40	5.95
32x4	....	43.95	5.55	6.15
33x4	44.10	46.20	5.70	6.30
34x4	44.95	47.25	5.85	6.45
35x4	....	....	6.25	6.90
36x4	....	50.25	6.30	6.95
37x4	....	....	7.05	7.75
32x4½	....	56.25	7.15	7.90
33x4½	....	58.85	7.20	7.95
34x4½	....	59.80	7.20	7.95
35x4½	59.55	62.55	7.35	8.10
36x4½	60.45	63.45	7.55	8.35
37x4½	....	66.05	7.85	8.65
33x5	....	72.10	8.60	9.45
35x5	....	76.70	8.90	9.80
36x5	....	77.70	9.05	10.00
37x5	77.30	81.20	9.20	10.15
37x5½	....	....	10.55	11.60
38x5½	....	....	10.75	11.85

The Ohio Tire Co.

MANSFIELD, OHIO,
April 22, 1918.

Size.	Plain.	Non-Skid.	Tubes. Gray.	Tubes. Red.
28x3	$15.20	$15.95	$3.25	$3.65
30x3	15.60	16.40	3.30	3.70
32x3	19.00	....	3.75	4.20
30x3½	20.30	21.25	4.15	4.60
31x3½	21.40	22.40	4.20	4.70
32x3½	23.65	24.70	4.25	4.75
34x3½	30.70	32.15	5.00	5.55
36x3½	34.30	....	5.30	5.90
30x4	32.85	....	5.45	6.05
31x4	31.10	32.65	5.25	5.85
32x4	31.70	33.20	5.35	5.95
33x4	33.15	34.80	5.50	6.10
34x4	33.90	35.65	5.65	6.25
35x4	40.90	42.90	6.35	7.10
36x4	36.10	37.95	6.05	6.70
37x4	43.60	....	6.75	7.50
33x4½	.....	46.55	6.75	7.50
34x4½	45.75	48.00	6.90	7.70
35x4½	47.80	50.20	7.10	7.85
36x4½	48.60	51.10	7.30	8.10
37x4½	50.50	53.10	7.55	8.40
35x5	54.50	57.25	8.60	9.55
36x5	63.65	66.80	9.45	10.45
37x5	57.80	60.70	8.90	9.85

Pennsylvania Rubber Co.

JEANNETTE, PA.,
May 10, 1918.

Size.	Vacuum Cup Oil-proof.	Ebony Tread Oil-proof.	Bar-Circle.	Gray Tubes.
28x3	$18.85	$17.00	$14.10	$3.10
30	19.45	17.60	14.80	3.20
30x3½	24.90	22.45	19.35	3.75
32	29.45	26.50	22.70	4.05
31x4	39.20	35.30	29.70	5.45
32	39.95	35.90	30.15	5.55
33	42.25	38.00	31.55	5.80
34	43.00	38.70	32.35	6.00
32x4½	55.55	50.00	....	7.15
33	57.80	52.05	42.25	7.30
34	58.20	52.40	43.65	7.35
35	60.55	54.50	45.55	7.50
36	61.20	55.10	46.25	7.65
33x5	70.95	63.90	49.30	8.45
35	74.65	67.20	52.10	8.95
37	78.60	70.75	55.10	9.25

DUOFORD TUBE
Interchangeable with either 30x3 or 30x3½ Casing.
Duoford Gray Tube..... $3.45

The Savage Tire Corp.

SAN DIEGO, CAL.,
May 1, 1918.

Size.	Plain Tread.	Savage Grip.	Tubes.
28x3	$14.85	$17.35	$3.95
30x3	15.05	17.65	4.10
30x3½	19.15	22.40	4.75
31x3½	20.60	24.15	5.15
32x3½	22.40	26.20	5.20
31x4	29.85	34.95	6.40
32x4	30.50	35.70	6.70
33x4	31.95	37.50	6.85
34x4	32.75	38.25	6.90
36x4	34.75	40.65	7.15
32x4½	....	47.70	7.95
33x4½	42.05	49.25	8.25
34x4½	43.40	50.80	8.55
35x4½	45.45	53.15	8.70
36x4½	46.15	53.90	9.05
35x5	53.30	62.35	10.15
37x5	56.50	66.10	10.60
38x5½	75.60	85.40	12.65

The Pharis Tire & Rubber Co.

NEWARK, OHIO,
April 22, 1918.

Size.	Plain.	Non-Skid.	Red Tubes.
28x3	$14.40	....	$3.85
30x3	15.25	$16.35	4.00
	19.25	....	4.15
29x3½	....	24.15	4.45
30x3½	19.70	21.05	4.60
31x3½	20.50	21.95	4.70
32x3½	22.60	24.20	4.75
34x3½	25.20	27.05	5.15
31x4	30.35	32.45	5.80
32x4	30.85	33.05	5.90
33x4	32.20	34.55	6.10
34x4	32.80	35.10	6.20
35x4	34.10	36.50	6.40
36x4	34.65	37.15	6.50
37x4	....		6.70
32x4½	49.95	52.55	7.60
33x4½	....	46.40	7.70
34x4½	44.00	47.10	7.75
35x4½	45.70	48.95	7.85
36x4½	46.30	49.50	8.10
37x4½	47.90	51.30	8.25
35x5	52.00	55.65	9.40
36x5	52.65	56.45	9.70
37x5	54.65	58.45	9.80
37x5½	....	91.35	10.50
38x5½	....	81.05	10.65

The Rubber Products Co.

BARBERTON, OHIO,
April 25, 1918.

Size.	Smooth Tread.	Strong-hold.	Tubes. Gray.	Tubes. Red.
30x3	$19.25	$21.10	$3.65	$4.50
30x3½	24.95	27.00	4.20	5.15
31x3½	25.90	28.90	4.40	5.60
32x3½	29.15	31.00	4.60	5.75
34x3½	....	34.85	4.85	6.05
31x4	34.55	37.85	5.75	7.05
32x4	37.15	40.45	6.10	7.35
33x4	38.65	42.40	6.30	7.60
34x4	40.75	43.15	6.50	7.95
35x4	....	45.30	6.70	8.15
36x4	42.10	45.95	6.85	8.35
32x4½	....	50.60	7.95	8.65
33x4½	....	52.60	8.00	9.25
34x4½	47.30	54.30	8.10	9.40
35x4½	50.25	56.25	8.35	9.60
36x4½	52.90	60.50	8.70	9.95
37x4½	53.70	63.10	8.85	10.15
35x5	....	67.70	9.75	11.10
36x5	....	68.60	9.95	11.40
37x5	67.90	74.95	10.20	11.60

Samson Tire & Rubber Corp.

COMPTON, CAL.,
May 20, 1918.

Size.	Non-Skid.	Smooth.	Tubes.
30x3	$22.35	$19.06	$4.51
30x3½	28.53	24.84	5.50
31x3½	29.98	26.22	5.56
32x3½	32.92	28.54	5.78
34x3½	37.25	32.29	6.05
36x3½	39.24	34.35	6.60
31x4	43.55	37.94	7.15
32x4	44.41	38.63	7.43
33x4	46.72	40.48	7.54
34x4	47.59	41.47	7.70
35x4	49.84	43.43	7.92
36x4	50.30	44.18	8.14
33x4½	56.77	49.43	9.74
34x4½	58.91	50.18	10.01
35x4½	61.57	52.38	10.29
36x4½	65.60	55.85	10.51
37x4½	67.68	58.10	10 73
35x5	75.71	61.50	12.10
36x5	76.81	62.37	12.32
37x5	80.21	65.09	12.49
37x5½	102.74	87.44	13.20
38x5½	106.20	88.59	13.31
39x6	119.46	108.10	16.63

Star Rubber Co.

AKRON, OHIO,
June 1, 1918.

Size.	Ribbed Tread.	"All Star" Tread.	Tubes. Red.	Tubes. Gray.
30x3	$23.40	....	$4.15	$3.60
30x3½	28.70	31.20	5.20	4.25
31x3½	30.05	....	5.40	....
32x3½	32.75	34.50	5.60	4.45
34x3½	....	....	5.95	....
31x4	41.50	43.45	6.55	5.60
32x4	42.75	44.70	6.70	5.75
33x4	44.00	45.95	6.85	5.90
34x4	45.25	47.20	7.10	5.95
36x4	....	50.50	7.50	....
32x4½	55.40	56.80	8.35	....
33x4½	57.10	58.50	8.60	....
34x4½	58.85	60.25	8.80	7.20
35x4½	60.60	62.00	9.00	7.50
36x4½	62.30	68.75	9.30	7.70
37x4½	....	65.50	9.50	....
35x5	72.50	74.50	10.40	....
36x5	75.50	76.80	10.60	....
37x5	77.25	79.25	11.00	....
36x5½	....	....	12.65	....
37x5½	95.50	98.75	12.70	....
38x5½	....	103.25	12.80	....

Smith Canvas Tread Tire Co.

UTICA, N. Y.,
June 1, 1918.

Size.	6000-7000-Mile.	3500-Mile.	Tubes.
28x3	$20.99	$17.06	$4.26
30x3	24.21	19.59	4.47
30x3½	33.42	21.55	5.14
31x3½	33.42	22.66	5.57
32x3½	34.03	25.21	6.13
34x3½	36.75	....	6.51
30x4	42.39	....	6.77
31x4	43.15	33.08	7.60
32x4	44.02	33.72	7.77
33x4	44.91	35.30	7.99
34x4	45.78	36.05	8.22
35x4	47.54	....	8.37
36x4	49.30	....	8.71
32x4½	56.93	45.75	8.88
33x4½	57.23	47.04	9.28
34x4½	58.11	48.50	9.96
35x5½	61.64	50.80	10.24
36x4½	62.52	51.62	10.70
37x4½	63.42	....	10.96
33x5	....	54.68	11.11
34x5	70.53	....	11.67
35x5	70.45	57.96	12.02
37x5	75.72	61.37	12.55
37x5½	95.11	....	14.37
38x5½	98.62	....	14.64

Standard Four Tire Co.

KEOKUK, IOWA,
April 5, 1918.

Size.	Super-Tread.	Non-Skid.	Tubes. Gray.	Tubes. Red.
28x3	$15.50	$16.60	$2.85	$3.30
30x3	16.15	17.25	2.90	3.40
30x3½	20.55	22.00	3.45	4.15
31x3½	22.50	....	3.60	4.25
32x3½	24.30	25.95	3.75	4.40
34x3½	....	....	3.95	4.65
31x4	32.00	34.70	4.60	5.50
32x4	32.60	35.30	4.85	5.65
33x4	34.50	37.30	5.05	5.90
34x4	35.05	37.95	5.20	6.15
35x4	....	....	5.35	6.30
36x4	....	40.60	5.45	6.45
33x4½	....	51.00	6.40	7.15
34x4½	48.00	51.45	6.50	7.30
35x4½	49.70	53.45	6.70	7.45
36x4½	50.55	54.10	6.95	7.70
37x4½	52.60	56.15	7.10	7.85
35x5	58.50	65.95	7.70	8.65
36x5	....	....	7.90	8.85
37x5	61.65	69.40	8.15	9.00
38x5½	....	....	9.45	10.80

Superior Tire & Rubber Co.

PHILADELPHIA, PA.,
April 23, 1918.

Size.	Plain Tread.	Non-Skid.	Tubes. Gray.	Tubes. Red.
28x3	$13.90	$14.64	$2.25	$2.50
30x3	18.32	19.27	2.35	2.70
30x3½	23.62	24.56	3.00	3.14
31x3½	24.22	25.24	3.10	3.27
32x3½	25.98	27.52	3.30	3.47
34x3½	27.67	29.76	3.40	3.57
30x4	31.31	33.56	3.80	4.20
31x4	33.85	34.60	3.90	4.30
32x4	36.10	38.23	4.00	4.40
33x4	36.33	39.09	4.10	4.50
34x4	38.14	39.61	4.20	4.60
35x4	39.43	40.30	4.30	4.70
36x4	39.78	41.52	4.40	4.80
34x4½	48.25	50.86	5.00	5.70
35x4½	49.30	51.90	5.10	5.80
36x4½	52.59	56.22	5.20	5.90
37x4½	53.63	57.09	5.30	6.00
35x5	60.36	60.73	6.20	6.70
36x5	61.93	62.96	6.40	6.90
37x5	65.27	66.50	6.60	7.2

The Swinehart Tire & Rubber Co.

AKRON, OHIO,
April 25, 1918.

Size.	Plain.	Ribbed.	Non-Skid.	Tubes.
28x3	$17.00	$19.25	....	$3.25
30x3	18.50	20.50	....	3.35
32x3	22.50	24.75	$26.00	3.70
30x3½	22.50	24.75	26.00	3.90
31x3½	23.95	26.70	28.00	4.10
32x3½	25.75	28.75	30.20	4.15
34x3½	29.20	32.55	34.20	4.35
36x3½	32.50	36.00	37.75	4.55
31x4	32.80	36.65	38.30	5.15
32x4	33.55	37.40	39.25	5.35
33x4	35.20	39.25	41.20	5.50
34x4	35.95	40.10	42.15	5.60
35x4	37.65	41.90	44.05	5.75
36x4	38.20	42.55	44.70	5.85
37x4	48.35	53.90	56.65	6.10
32x4½	44.75	50.25	52.50	6.80
33x4½	46.25	51.90	54.30	6.95
34x4½	47.75	53.45	55.85	7.05
35x4½	49.75	55.85	58.35	7.15
36x4½	50.75	56.90	58.35	7.25
37x4½	52.65	59.50	61.95	7.40
34x5	57.75	65.00	68.00	8.35
35x5	59.00	65.75	68.50	8.50
36x5	60.25	66.85	69.60	8.70
37x5	61.50	69.10	72.50	8.85
37x5½	81.00	95.00	100.00	9.25

Sioux City Tire & Mfg. Co.

SIOUX CITY, IOWA,
May 1, 1918.

Size.	Driving Tread.	Non-Skid Tread.	Tubes. Gray.	Tubes. Red.
28x3	$16.20	$17.42	$3.14	$3.63
30x3	16.80	18.06	3.19	3.74
Universal	....	....	3.58	4.13
30x3½	21.48	22.94	3.80	4.57
32x3½	25.32	27.14	4.13	4.84
31x4	33.42	36.23	5.17	6.05
32x4	34.02	36.86	5.34	6.22
33x4	36.00	38.99	5.56	6.49
34x4	36.54	39.68	5.67	6.77
36x4	45.48	49.91	6.22	7.26
33x4½	49.02	53.30	7.04	7.87
34x4½	50.10	53.76	7.15	8.03
35x4½	51.90	55.89	7.37	8.20
36x4½	52.74	56.52	7.65	8.47
37x4½	64.50	69.00	8.03	9.13
35x5	61.08	68.94	8.75	9.52
37x5	64.38	72.57	9.08	9.90

Sterling Tire Corp.

RUTHERFORD, N. J.,
April 1, 1918.

Size.	Fabric.	Cord.	Red Tubes.
28x2¼	....	....	$3.08
28x2½	....	....	3.27
28x2¾	....	....	3.39
28x3	$17.46	....	3.71
30x3	20.80	....	3.97
32x3	....	....	4.28
29x3½	24.50	....	5.30
30x3½	26.67	$39.65	5.40
31x3½	28.32	....	5.50
32x3½	29.81	42.35	5.66
34x3½	....	....	6.05
36x3½	....	....	6.31
30x4	....	....	6.29
31x4	34.76	52.03	6.47
32x4	43.64	53.85	6.59
33x4	45.10	55.28	6.83
34x4	46.55	56.76	7.02
35x4	....	....	7.14
36x4	49.46	....	7.38
37x4	....	....	7.62
40x4	....	....	8.11
32x4½	58.19	60.64	8.11
33x4½	59.65	62.20	8.40
34x4½	61.10	63.85	8.65
35x4½	62.56	65.40	8.89
36x4½	64.00	66.99	9.13
37x4½	65.46	....	9.44
38x4½	....	....	9.68
33x5	....	75.62	10.90
35x5	72.73	79.42	10.46
36x5	74.20	81.31	10.70
37x5	77.10	83.21	10.89
39x5	....	....	11.79
36x5½	....	....	12.10
37x5½	81.46	97.76	12.46
38x5½	84.38	100.87	12.83
36x6	104.00	104.00	16.00
38x7	127.65	142.00	17.60
40x8	....	180.00	27.00

Toliver Tube & Tire Co.

DENVER, COLO.,
June 1, 1918.

Size.	4000 Mile Tires. Plain.	4000 Mile Tires. Non-Skid.	6000 Mile Tires. Plain.	6000 Mile Tires. Non-Skid.	Tubes. Gray.	Tubes. Puncture Proof
28x3	....	....	$17.95	$19.60	$3.40	$4.85
30x3	$14.75	$15.50	18.60	20.55	3.35	4.80
32x3	....	....	23.60	26.50	3.85	5.00
30x3½	19.20	20.10	22.95	25.60	4.13	5.90
31x3½	....	....	24.95	27.25	4.20	6.00
32x3½	....	....	26.90	29.90	4.25	6.05
34x3½	....	....	29.95	33.85	5.00	7.15
30x4	....	....	39.70	46.35	5.45	7.80
31x4	....	....	34.90	39.25	5.25	7.50
32x4	....	....	35.50	39.90	5.35	7.65
33x4	....	....	37.40	41.95	5.50	7.85
34x4	....	....	37.95	42.75	5.65	8.10
35x4	....	....	39.40	44.90	6.40	9.15
36x4	....	....	39.85	45.60	6.60	9.45
35x4½	....	....	52.90	59.45	7.10	10.10
36x4½	....	....	53.95	59.95	7.30	10.45
37x4½	....	....	55.80	62.35	8.35	12.00
35x5	....	....	61.85	72.85	8.60	12.25
36x5	....	....	62.90	73.80	9.45	13.55
37x5	....	....	65.35	76.55	8.90	12.75

Globe Promotes Reilly

W. H. P. Reilly has been promoted by the Globe Rubber Tire Mfg. Co. to the position of general sales manager, with headquarters at the main offices of the Globe company, 1851 Broadway, New York City. The new responsibilities and powers entrusted to Mr. Reilly are regarded by his friends in the trade as a testimonial of the success of the campaign he made on the Pacific Coast for the Globe. Prior to joining the Globe company, Mr. Reilly was Western sales manager for the Ajax Rubber Co.

Tire Trade News Items

The Standardization of Tire Sizes—New Firestone Booklet—Mason's Quarterly Dividend—New Tire Fabric Plant—Ford Joins Viking—Gillette's Annual Meeting—Miller Gives Cord Ties Severe Test

The War Service Committee of the Rubber Industry of the U. S. A. is tabulating tire information for presentation to the National Automobile Chamber of Commerce for the purpose of ultimately securing a general plan for the simplification and reduction in tire sizes. In order to obtain the best results and the fullest cooperation between tire manufacturers and motor car manufacturers with reference to such simplification in the manufacture of motor car and motor truck tires and the reduction of the number of sizes to be manufactured it will be necessary for motor car manufacturers to have a complete list of all points where tires may be obtained for renewal purposes and to be assured that if they equip their cars with certain types and sizes of tires as original equipment that there will be no difficulty in obtaining locally renewal tires for these cars, no matter what market they are shipped to.

The following is a list of the countries and cities in which motor car manufacturers are now selling their cars and in which they desire assurance that renewal stocks will be available:

AUSTRALASIA	
Adelaide, Australia.	Feilding, N. Zealand.
Brisbane, Australia.	Invercargill, New Zealand.
Melbourne, Australia.	Lyttleton, N. Zealand.
Perth, Australia.	New Plymouth, New Zealand.
Sydney, Australia.	Oamaru, New Zealand.
Hobart, Tasmania.	Wellington, New Zealand.
Auckland, N. Zealand.	Napier, New Zealand.
Caristchurch, N. Zealand.	Suva, Fiji Islands.
Dunedin, N. Zealand.	
ASIA AND OCEANIC	
Saigon, French Indo-China.	Welterverden, Java.
Hilo, Hawaii.	Bangkok, Siam.
Honolulu, Hawaii.	Hong Kong, China.
Manila, Philippines.	Shanghai, China.
Medan, Sumatra.	Peking, China.
Batavia, Java.	Tientsin, China.
Semerang, Java.	Korea, Japan.
Sourabaya, Java.	Kobe, Japan.
	Yokohama, Japan.
AFRICA	
Bloemfontein.	Nairobi.
Bulawayo.	Puerto Marques.
Capetown.	Canary Islands.
Durban.	Madeira.
East London.	Azores.
Port Elizabeth.	Tangier, Morocco.
Johannesburg.	Casablanca.
Port Louis, Mauritius.	
EUROPE	
Barcelona, Spain.	Bilbao, Spain.
Madrid, Spain.	Valencia, Spain.
Seville, Spain.	San Sebastian, Spain.
Malaga, Spain.	Lisbon, Portugal.
Cadiz, Spain.	Oporto, Portugal.
Vigo, Spain.	
SOUTH AMERICA	
Buenos Aires, Argentine.	Bahia, Brazil.
Bahia Blanca, Argentine.	Santos, Brazil.
La Paz, Bolivia.	Curitiba, Brazil.
Lima, Peru.	Montevideo, Uruguay.
Sao Paulo, Brazil.	Punta Arenas, Chile.
Porto Alegre, Brazil.	Para, Brazil.
Rio Grande do Sul, Brazil.	Pernambuco, Brazil.
Manaos, Brazil.	Rio de Janeiro, Brazil.
Santiago, Chile.	Quito, Ecuador.
Valparaiso, Chile.	Quayaquil, Ecuador.
Concepcion, Chile.	Bogota, Colombia.
Valdivia, Chile.	Barranquilla, Colombia.
	Cartagena, Colombia.
WEST INDIES AND CENTRAL AMERICA	
Bahamas.	Caracas, Venezuela.
Bridgetown, Barbadoes.	Santo Domingo, Dom. Rep.
Kingston, Jamaica.	Curacao, Dutch West Indies.
Port of Spain, Trinidad.	Vera Cruz, Mexico.
San Juan, Porto Rico.	Tampico, Mexico.
Havana, Cuba.	Mexico City, Mexico.
Santiago, Cuba.	Monterey, Mexico.
Port au Prince, Haiti.	Yucatan, Mexico.
Georgetown, Demarara.	San Luis Potosi, Mexico.
San Jose, Costa Rica.	Panama, Panama.
Corinto, Nicaragua.	Colon, Panama.
San Salvador, Salvador.	Fort de France, Martinique.
Tegucigalpa, Honduras.	Guatemala City.

The sizes and types involved are as follows:

Clincher,	30 x 3½, Plain and Non-Skid.	Applied to 30 x 3½ inch rim.
Clincher,	31 x 4 , Plain and Non-Skid.	Applied to 30 x 3½ inch rim.
Straight-Side,	32 x 3½, Plain and Non-Skid.	Applied to 32 x 3½ inch rim.
Straight-Side,	33 x 4 , Plain and Non-Skid.	Applied to 33 x 4 inch rim.
Straight-Side,	34 x 4½, Plain and Non-Skid.	Applied to 34 x 4½ inch rim.
Straight-Side,	35 x 5 , Plain and Non-Skid.	Applied to 34 x 4½ inch rim.
Straight-Side,	36 x 6 , Plain and Non-Skid.	Applied to 36 x 6 inch rim.
Straight-Side,	38 x 7 , Plain and Non-Skid.	Applied to 38 x 7 inch rim.
Straight-Side,	40 x 8 , Plain and Non-Skid.	Applied to 40 x 8 inch rim.

Tire manufacturers are requested to notify M. L. Heminway, secretary of the War Service Committee of the Rubber Industry of the U. S. A., without delay, advising whether they or their agents carry the sizes and types listed above in all the cities specified, and if such is not a fact whether they will carry these goods in the places named, provided, of course, they are not prevented from doing so by conditions beyond their control, such as failure to obtain licenses, failure to obtain shipping space, failure to obtain priority orders, or Government obstacles of this nature.

Manufacturers who are not prepared to carry stocks of the sizes desired in all of the cities listed are requested to indicate the cities in which they are prepared to carry such stock.

This information is to be tabulated and presented to the proper committee of the National Automobile Chamber of Commerce in order that it may give its approval to the general plan of simplification and reduction in tire sizes, which approval is desired by the War Service Committee of the Rubber Association.

New Tire Booklet Out

Thrift and conservation should not be terms foreign to tire users, believes Edward G. Babcox, advertising manager of the Firestone Tire & Rubber Co., who has just issued a new booklet, "How to Increase Tire Mileage." The writing is an attractive work of 64 pages, well printed in two colors and profusely illustrated. It takes up in 24 chapters practically everything a layman cares to know about tires and their proper care.

Mason Quarterly Dividend

The sales of the Mason Tire & Rubber Co., Kent, Ohio, for the second quarter of 1918 ending April 30, were $501,540.25. Net earnings for the second quarter were $63,234.02, and, after allowing for preferred dividend requirements for that period, it left over 25 per cent applicable to the common stock.

To Make Tire Fabric

The Tower Textile Mfg. Co., Toledo, Ohio, has received more than $1,000,000 worth of government contracts. Some of these are for canvas belts and fabric for Akron tire factories. The factory is only partially completed, but will be in operation by July 15.

Ford with Viking Co.

J. C. Ford, formerly manager of the Brooklyn, N. Y., branch of the Goodyear Tire & Rubber Co., has been made manager of the Brooklyn branch of the Combination Rubber Mfg. Co., Bloomfield, N. J., manufacturers of Viking tires.

Gillette Holds First Annual Meeting

Remarkable results were shown at the first annual meeting of the stockholders of the Gillette Rubber Co., which was recently held at Eau Claire, Wis. The Gillette factory is located in Eau Claire, but all its sales are handled through the New York office at 1834 Broadway.

The annual report presented by President S. P. Woodward gives the following figures: Total investment, approximately, $1,434,520.25; appraised value of plant and equipment, $507,607.14; quick current assets, in addition to above, $988,749.42; cash in banks, $77,427.60; invested in raw materials, inventoried at cost, $478,664.62; accounts receivable, $353,619.46; total liabilities April 1, 1917, being paid promptly when due, and a considerable amount already liquidated, $177,740.89.

The first seven months of operation show a surplus account of $119,601.63. The total shipments for March amounted to $186,000, the largest for any month since production started. Production is reported to be averaging at the present time 500 tires per day, which will soon be increased, thanks to improved facilities, to 750 tires and 1,000 tubes per day. The company now employs about 300 men and the monthly payroll averages $20,000.

The following officers, directors and executives were elected and appointed: Directors, C. G. Ruth, R. B. Gillette, S. P. Woodward, N. J. Whelan, A. E. Burr and F. C. Herman; S. P. Woodward, president and treasurer; R. B. Gillette, vice-president and general manager; Edward Hutchins and C. G. Race, vice-presidents; S. H. Smith, general superintendent; R. W. Hutchins, mechanical engineer; C. H. Hopson, purchasing agent and assistant treasurer; K. H. Stubenvol, chemist; H. L. Cook, sales manager; C. G. Race, Western district manager; C. O. Lund, Southern district manager; W. H. Putnam, New England district manager, and S. E. Bostwick, Northwestern district manager.

Miller Cord Tires Tested

Four big, travel-stained Pierce-Arrow cars rolled into the garage of the Miller Rubber Company, of Akron, the other day, thereby ending a 79,000-mile endurance campaign waged against Miller Uniform Cord Tires.

Leaving Akron on December 30, the drivers had instructions to "give the tires the limit" in the way of abuse and hard wear. The fleet of four cars, two of which weighed 6,000 pounds each, immediately headed for Orlando, Fla. Some of the tires attained a mileage of more than 15,000 miles, while seven, eight and ten thousand miles were common.

"The benefit derived by road testing," explained Frank C. Millhoff, General Sales Manager of the company, "lies in the fact that it soon shows up weak or defective points of manufacture. We knew that road testing would soon reveal the strength or weakness of our cord tire building methods.

"The idea of employing in the building of this particular product only those men of at least ten years' experience in tire building, and of checking up their personal efficiency, to the finest degree, was regarded as many as either a strictly advertising proposition or the work of a manufacturing crank. There was only one idea back of it, however, and that was 'an extraordinarily high and uniform mileage.' That aim has been accomplished."

MARKETS

Manufactured Rubber Goods

NEW YORK, June 10, 1918.

Business in the rubber trade continues in very good volume, the demand being materially larger than the supply in practically all lines. The greatest difficulties of the manufacturer are the shortage of labor and the scarcity of some fabrics. Labor shortage is by far the most acute and difficult problem, becoming more serious every day. There are many operations in rubber factories that cannot be performed readily by women.

War conditions in the rubber industry, as in all others, are continually compelling a tendency to "take up slack" by curtailing the output of many unnecessary odd sizes, kinds and styles of articles, so that effort can be concentrated on merchandise that has demonstrated its right to exist. Of course, there always are exceptions, but anything that obviates the unnecessary manufacture of many intermediate items is desirable under present conditions.

The general run of trade among wholesalers is referred to as good, and a large volume of business is being done in the jobbing trade that is directly or indirectly based principally on production related to Government war needs. More and more the articles ordered by this trade are running to goods for war materials and the requirements of factories operating on war work. The airplane industry, for instance, is a new buyer of quantities of rubber goods. While the volume of business is good at the present time, the problem attracting the attention of rubber manufacturers who plan ahead is what will be the demand from regular sources when these large installations are completed.

MECHANICAL GOODS

Conditions in the mechanical rubber goods trade are unchanged from those noted in our last report, with the exception that the demand for goods for war and war industries is more than compensating for the fall-off in business due to the stagnancy of the building trade. The extensive building that is being done by the Government and by corporations holding Government orders is absorbing large quantities of mechanicals.

Owing to the backwardness of the season and to prolonged rainy weather, the retail demand for rubber garden hose has been smaller than could have been expected; a little more settled weather will no doubt speed up retail sales in this line. The scarcity of cotton duck is curtailing the output of the rubber factories, but it no longer appears probable that a shortage will be experienced in garden hose this season. Some brands of competition garden hose have been withdrawn entirely from the market, for the present at least.

PNEUMATIC TIRES

Automobile tires and inner tubes have not taken a second raise as yet, but if rumors in the trade are to be given credit, a further advance may be expected at any time. More manufacturers have followed the general movement and have issued new price lists showing an increase of from 5 to 25 per cent over the lists that were in effect last month. Some manufacturers only increased their casing prices, tube prices remaining unchanged, but even these manufacturers state that they may have to advance their tube lists in the near future, all depending largely on the way the Government's restrictions on crude rubber imports will work out. Additional new price lists are given elsewhere in this issue.

SOLID RUBBER TIRES

The demand for solid rubber tires is very heavy, both for motor trucks and for the small "industrials" that are used extensively in large plants. Practically all solid tire price lists have been advanced, as will be noted elsewhere in this issue. Many manufacturers are taking up the making of solid tires, especially the small size for Ford trucks and Ford combination trucks.

DRUGGISTS' SUNDRIES

Druggists' sundries manufacturers are very busy and have no difficulty in selling more goods than they can readily deliver. The demand for seasonable goods and for specialties that have been put out by the several manufacturers for the benefit of the army and navy, air mattresses, air pillows and cushions and collapsible bath tubs and wash basins, are all in demand far in excess of manufacturing facilities. An enormous volume of business is being done with the Red Cross and with the Army Medical Corps.

Cotton Yarn and Fabric

NEW YORK, June 10.

The raw cotton market has developed a decidedly firmer tone during the past two weeks following the decline to the recent low levels toward the end of May. This renewed strength in the market was brought about partly by reports of a better demand for the lower grades of cotton and partly because dealers are holding a more optimistic view of the export situation.

Weather conditions throughout the cotton belt have been very favorable during the past few weeks and the Government's first crop report for this year placed the condition of the new crop on May 25 at 82.3 per cent of a normal, compared with 69.5 last year, 77.5 in 1916, and 79.0, the May 25 ten-year average. Revised estimates show that the area planted and in cultivation at the end of June last year was 34,925,000 acres, while the area picked was 33,841,000 acres. The average yield per acre was 159.7 pounds of lint. An estimate of the acreage planted this year will be announced during July.

Higher grades of white cotton held over from the last crop are in very small supply and are firmly held by sellers, with a good demand reported. Better trade-buying of the lower grades of cotton is noted, and some buying of October cotton has been reported on the local market. The rapidity with which American ships are being turned out indicates that next season domestic buyers will have to compete more with exporters for their supplies.

EGYPTIAN COTTON

The United States Shipping Board has been investigating the country's needs of Egyptian cotton with a view of restricting imports for the year to 80,000 bales as a measure of conserving shipping space. As approximately 60,000 bales have already been imported this year, this would leave only a balance of 20,000 bales to reach this country during the remainder of 1918. No late arrivals of Egyptian have been reported from Boston, and in local circles it is said that the Arizona crop of Egyptian cotton will be much smaller this year than last year.

SEA ISLAND

Sea Island cotton is unchanged at from 73 to 75 cents per pound for average extra choice, and local dealers report that there is little business being done. The outlook for the new crop is serious, inasmuch as restricted acreage and damage from the boll weevil pest have combined to cut down this year's crop. Poor weather conditions have also retarded the growth of the crop, and estimates place the crop as very much below last year's output.

YARNS

Cotton yarns are in steady demand, but as the spinners are kept busy on Government work, they are loath to accept any civilian business. In many cases, they have been prevented from making deliveries of yarns to manufacturers by embargoes. There is little yarn available for spot trading in New York, and knitters are willing to pay premiums over the regular prices to get quick deliveries. Combed yarns are scarce, and the report that tire duck mills will be allowed to run 25 per cent of their looms on civilian business is expected to increase the demand.

FABRICS

Government requirements are taking large lots of fabrics from the market and the market is holding firm with prices steady, although many speculators have somewhat weakened the market by unloading their supplies. It is said that these speculators, many of whom call themselves jobbers, have about exhausted their supplies, and the market is now showing an advancing tendency with the mills increasing their prices steadily.

TIRE FABRICS

The market for tire fabrics holds steady, with an active demand reported, and prices being firmly maintained by sellers. Prices for combed Sea Island, 17¼ fabric,

are $1.70 per square yd., for combed Egyptian $1.40, and for carded Egyptian $1.20 per square yard. Carded 17¼ ounce peelers are quoted at $1.10 per square yard, and combed peelers at $1.15. The shortage of labor is expected to decrease the supplies of peeler and other domestic staples and restrictions upon imports of Egyptian cotton may make for a shortage of supplies that will force spinners to curtail operations.

HOSE AND BELTING FABRICS

Mechanical ducks continue in steady demand, and supplies in the hands of sellers are limited. About 50 per cent of the duck mills in the country are now working for the Government, and new requirements of Uncle Sam will take approximately 7,000,000 yards of duck from the market. Much of the material needed for the Government will be used for hospital and commissary purposes, and the new demands of the Government will make it more difficult for rubber manufacturers to obtain their necessary supplies.

DRILLS, SHEETINGS AND OSNABURGS

The demand for these fabrics is very strong at the present time, with the market firm and prices more or less nominal. The Government is taking large quantities of osnaburgs, as this material is badly needed for camouflage purposes by our army in France. Drills and sheetings are also in such demand by the Government that civilian consumers are finding it difficult to get their requirements filled.

BURLAPS

The burlap market continues firm with spot trading restricted by the small stocks available for this purpose. A large cargo arrived at New York a few days ago having just escaped the German U-boat raiders off the Atlantic coast. The presence of the German submarines in American waters, if continued, will make for higher prices on burlaps as freight and insurance rates will naturally be increased.

New York Quotations

TIRE FABRICS

17¼-ounce Sea Island, combed,	sq. yd.	$1.70@	—
17¼-ounce Egyptian, combed...		1.40@	—
17¼-ounce Egyptian, carded...		1.20@	—
17¼-ounce Peelers, carded.....		1.10@	—
17¼-ounce Peelers, combed.....		1.15@	—

DUCKS

Single Filling (pound basis).....	lb.	.78
Double Filling (pound basis).....		.79

DRILLS

37-inch	2.35-yard	yd.	.35
37-inch	2.75-yard		.30
37-inch	3.00-yard		.29
37-inch	3.25-yard		.27
37-inch	3.50-yard		.26
37-inch	3.95-yard		.22½
37-inch	2.00-yard Southern	lb.	.75
38-inch	2.00-yard Northern		—
40-inch	2.47-yard Northern	yd.	.35
40-inch	2.47-yard Northern		—
52-inch	1.90-yard Southern		.40
52-inch	1.90-yard Northern		.40

SHEETINGS

40-inch	2.35-yard	yd.	.32
40-inch	2.50-yard		.33
40-inch	2.85-yard		.32
40-inch	3.00-yard		.28½
40-inch	3.25-yard		.28
40-inch	3.75-yard		.23
40-inch	3.60-yard		.25½
40-inch	4.25-yard		.21
38-inch	Jacket Cloths	yd.	.21@23

BURLAPS
(Spot Carload Lots)

40-inch	8 -ounce		19.00
40-inch	10 -ounce		23.25
40-inch	10½-ounce		24.00

Chemicals and Compounding Materials

NEW YORK, June 10, 1918.

The market for chemicals, as far as new business was concerned, displayed a generally quieter tone during the past two weeks, as on account of the restrictions in the imports of crude rubber manufacturers took hold of their materials only in a rountine way and were careful to avoid overstocking. Business on old contracts is proceeding satisfactory and in many instances consumers are urging deliveries ahead of the contracted dates to save the increase in freight rates scheduled for June 25. The entire market for colors has a firmer undertone and all lead pigments are pointing higher on the advance in the base metal. White lead dry, basic sulphate in round lots was held at 8¾ @ 9¼c.

The advance in freight rates is expected to bring a further readjustment in values shortly. Glycerine was offered lower at 62 @ 62½c and so far no support through active buying was noted. Munition makers have been entirely absent from the market, causing the lower tendency, but the whole situation might change overnight if effective buying appears again. On the decline in cash corn, powdered corn starch was quoted 25 points lower at 4.25 @ 4.55c.

ANTIMONY SULPHURETS

After easier prices for antimony metal the market has a tendency to harden, as sellers expect a firmer tone in the metal on further Government buying. While sulphuret red was held unchanged at 25 @ 26c, sulphuret golden was quoted 2c higher at 28 @ 30c per pound.

LEAD PIGMENTS

The higher tendency in the base metal has resulted in the first change in many weeks in the market for white lead basic sulphate, which was quoted at an advance of ¼c at 8¾ @ 9¼c. A good inquiry was in evidence for spot material but actual offerings were limited.

DRY COLORS

The stronger feeling in the market for dry colors was attributed to the advances which have taken place in the cost of labor, materials and freight, which items have added to the cost of production. The usual heavier consumption during the summer season also is contributing to the firmer tendency.

STARCH

Declining prices in cash corn are responsible for the reduction of 25 points in starch, which is held now at 4.25 @ 4.55c.

TOLUOL

The market for pure toluol is nominally without special feature with the Government's fixed price of $1.50 per pound for carlots and $1.55 per pound for drums in any quantity. Releases are being made through the War Trade Board at those figures, but they are still far below the quantity in urgent demand by private consumers.

ROSIN

Prices fluctuated sharply and new high levels for this season were established. Spot supplies are moderate and in view of the railroad congestion the outlook is not particularly bright for increased supplies.

CAUSTIC SODA

More firmness is apparent in the market for caustic soda following the elimination of competition from second hands and the feeling is better all around. Basic conditions will sustain present price levels with a possibility of higher figures later.

GLYCERINE

Further weakneess developed in glycerine which was offered as low as 62 @ 62½c without finding any buyers. The depression is caused by the entire absence of the munition concerns from the market, but as soon as new buying will appear, prices are expected to rally easily.

BENZOL

Inquiry for pure waterwhite benzol is fair, but there is still a large excess of stocks and prices remain barely steady.

ANILINE OIL

Demand for aniline oil is on a fair scale and as stocks are not large the present level of prices is sustained.

Prices Current for Chemicals, Fillers, Colors, etc.

Acetone	lb.	*.25½	@	.25¾
Accelerator, in drums	lb.	.85	@	1.00
Acids, Acetic, 56%	lb.	.16	@	.18
Carbolic, C. P	lb.	.53	@	.55
Cresylic, 95%	gal.	1.15	@	1.20
Muriatic, 20 deg.	lb.	.02½	@	.02¾
Acids, Muriatic, 22 deg.	lb.	.03	@	.03¼
Nitric, 42 deg.	lb.	.09½	@	.09¾
Nitric, 40 deg.	lb.	.09	@	.09¼
Sulphuric, 60 deg.	lb.	.01½	@	.02
Tartaric, crystals	lb.	.86	@	.88
Aluminum Flake	**ton**	**28.00**	**@**	**30.00**
Aniline oil, bulk basis	**lb.**	**.27**	**@**	**.27½**
Antimony, metal spot	lb	12.00	@	12.50
Oxide	lb.	15.00	@	16.00
Sulphuret, red	**lb.**	**.25**	**@**	**.26**
Sulphuret, golden	lb.	.28	@	.30
Sulphuret, crimson	**lb.**	**.45**	**@**	**.50**
Asbestos	**ton**	**35.00**	**@**	**45.00**
Asphaltum, Egyptian	lb.	.20	@	.25
Domestic	ton	22.00	@	30.00
Barium sulphate, technical	**lb.**	**.04½**	**@**	**.05**
Sulphide	**lb.**	**.07¼**	**@**	**.07½**
Barytes, prime white imported	**ton**	*40.00	@	45.00
white, domestic	ton	32.00	@	36.00
off color domestic	ton	22.00	@	24.00
Benzol, pure, bulk	gal.	.30	@	.35
Beta-naphthol, sublimed	lb.	.85	@	.90
unsublimed	**lb**	**.65**	**@**	**.70**
Blacks, Drop	lb.	.08	@	.15
Ivory	lb.	16	@	.30
Carbon, gas, cases	lb.	.24	@	.40
Lampblack, R. M	lb.	.15	@	.25
Mineral blacks	ton	25.00	@	30.00
Blues, Prussian	lb.	1.10	@	1.30
Soluble	lb.	1.15	@	1.35
Ultramarine	lb.	.17	@	.50
Browns, Umber, Turkey, burnt, powdered	lb.	.05	@	.06½
American, burnt	lb.	.03½	@	.04
Cadmium sulphide, yellow	**lb.**	**2.00**	**@**	**2.25**
Carbon, bisulphide, bulk	lb.	.08	@	.09½
tetrachloride, drums	lb.	.15½	@	.17
Caustic Soda, 76@78%	lb.	.04½	@	.04¾
Chalk, precipitated, extra light	**lb.**	**.05**	**@**	**.05¾**
light	**lb.**	**.04¾**	**@**	**.05¼**
heavy	**lb.**	**.03¾**	**@**	**.04¼**
China clay, domestic	ton	12.50	@	20.00
imported	ton	*20.00	@	36.00
Fossil flour	**lb.**	**.03¾**	**@**	**.05**
Gilsonite	ton	36.00	@	50.00
Glue, extra white	lb.	.35	@	.45
medium	lb.	.30	@	.35
low grade		.23	@	.27
Glycerine, C. P. (drums)	lb.	.62	@	.62½
Graphite, flake (bbl.)	**lb.**	**.18**	**@**	**.20**
powdered (bbl.)	**lb.**	**.13**	**@**	**.15**
Green, chrome, R. M	lb.	.14	@	.20
Ground glass (fine)	lb.	.03½	@	.04
Hexamethylene	lb.	1.10	@	1.15
Infusorial earth, powd'd	**ton**	**60.00**	**@**	**—**
bolted	**ton**	**70.00**	**@**	**—**
Iron oxide, red, reduced grades	**lb.**	**.05**	**@**	**.06**
red, pure, bright	**lb.**	**.12**	**@**	**.15**
Lead, red oxide of	**lb.**	**.10**	**@**	**.10½**
sublimed blue	**lb.**	**.08½**	**@**	**.09**
white, basic carb	lb.	.09¼	@	.10¼
white, basic sulp	lb.	.08¾	@	.09¼
Lime flour	**lb.**	**.01½**	**@**	**.01⅝**
Litharge	lb.	.09¾	@	.10¼
English	**lb.**	***.12**	**@**	**.13**
sublimed	**lb.**	**.09¼**	**@**	**.09¾**
Lithopone, domestic	lb.	.07½	@	.08½
Magnesia, carbonate	lb.	.12½	@	.13½
calcined, heavy	lb.	.12	@	—
calcined light	lb.	.75	@	.80
Magnesite, calcined, pwd.	**ton**	**65.00**	**@**	**70.00**
Mica, powdered	lb.	.03¾	@	.04¾
Mineral rubber (asphaltum base)	**ton**	**80.00**	**@**	**115.00**
Naphtha, motor gasoline, (steel bbls.)	**gal.**	**.24**	**@**	**—**
68 @ 70 degrees (steel bbls.)	**gal.**	**.30**	**@**	**—**
70 @ 72 degrees (steel bbls.)	**gal.**	**.31**	**@**	**—**
73 @ 76 degrees (steel bbls.)	**gal.**	**.33**	**@**	**—**
machine (wood bbls.)	gal.	.42	@	—

Oil corn, crude	cwt.	16.75 @	17.00
corn, refined	cwt.	20.72 @	20.92
linseed (bbl.)	gal.	1.57 @	1.58
palm, Lagos	lb.	*.39 @	.40
pine, yellow	gal.	.45 @	.46
rapeseed, refined	gal.	1.75 @	1.80
rapeseed, blown	gal.	*1.90 @	2.00
rosin, first rectified	gal.	.41 @	.43
tar (commercial)	gal.	.32 @	.34
Orange mineral, American	lb.	.13¼ @	.14½
imported	lb.	*.15 @	.20
Paraphenylenediamine	lb.	3.25 @	4.00
Petrolatum, bbls., amber	lb.	.06 @	.07
pale yellow	lb.	.06 @	.07
Pine tar, kiln	bbl.	11.00 @	11.50
Pitch	bbl.	4.25 @	4.75
Plaster of paris	bbl.	2.00 @	2.50
Red, Tuscan	lb.	.25 @	.32
Indian (reduced)	lb.	.07 @	.09
Standard	lb.	.10 @	.15
Rosin (common to good) @ 280 lbs.	bbl.	8.25 @	—
Rotten stone, powdered	lb.	.02½ @	.04¼
Rubber, substitute, black	lb.	.13 @	.17
white	lb.	.15 @	.24
brown	lb.	.20 @	.25
Shellac, fine orange	lb.	.69 @	.73
T. N.	lb.	.63 @	.64
Bleached ordinary	lb.	.60 @	.61
Bleached bonedry	lb.	.71 @	.72
Silex (silica)	ton	28.00 @	36.00
Soapstone, powdered	ton	10.00 @	12.50
Starch, corn, powdered	lb.	4.25 @	4.55
Sulphur, crude	ton	*50.00 @	..
refined, flour, per 100-pounds, in bbls.		3.85 @	4.40
roll		3.70 @	4.15
commercial		3.25 @	3.50
Talc, American	ton	15.00 @	22.00
French	ton	*30.00 @	35.00
Toluol, pure, in drums	gal.	1.50 @	1.55
Tripolite earth	ton	60.00 @	70.00
Turpentine, pure gum—			
spirits	gal.	.52 @	.52½
wood	gal.	.47 @	.50
Venice, artificial	gal.	.12 @	13
Vermilion, English	lb.	2.00 @	2.10
Wax, beeswax, crude, yel.	lb	.38 @	.40
ceresin, white	lb.	.18 @	.19
carnauba, No. 3	lb.	.76 @	.80
Wax, Montan	lb.	*.35 @	.40
ozokerite, black	lb.	.75 @	.80
ozokerite, green	lb.	*.85 @	.95
Paraffin, refined, 118/120 M. P. (bbls.)	lb.	.13¼ @	.13½
Wax, Paraffin, 123/125 M. P.	lb.	.12¾ @	.13¼
128/130 M.P.	lb.	.13 @	.13½
133/136 M.P.	lb.	.14¾ @	.15¼
Crude, 120/122 M.P.	lb.	.09½ @	.10
124/126 M.P.	lb.	.09⅞ @	.10
Whiting, commercial	cft.	1.00 @	1.10
Alba	cwt.	1.00 @	—
Whiting, Paris, white, American	cwt.	1.50 @	1.75
English cliffstone	cwt.	1.75 @	2.75
Yellow chrome	lb.	.30 @	.35
Zinc oxide, American process, horsehead brand	lb.	†.10¼ @	.10½
selected	lb.	†.10¾ @	.11
"XX red"	lb.	†.10¼ @	.10⅛
French process, green seal	lb.	†.13½ @	.13¾
red seal	lb.	†.13 @	.13¼
white seal	lb.	†.14 @	.14¼
Zinc substitutes	ton	35.00 @	40.00
Zinc, sulphide, pure	lb.	.06 @	.07

*Nominal. †Contract prices.

Crude Rubber

JUNE 10, 1918.

The market for crude rubber is fast adjusting trading to comply with the regulations of the Government as to fixed prices and restricted imports. To facilitate the execution of existing contracts running over the balance of the year the importers and dealers have appointed a so-called clearing committee to "wash out" contracts. At the last meeting of the Rubber Association a resolution was adopted that contracts for shipment shall be extended, if desired, to a date which will not be later than 15 days after the publication of the new Government regulations for the next period, which will follow the present restriction period covering May, June and July shipments. If on or before this date the buyer has not furnished allocation certificates to provide for proper shipment, the contract is to be liquidated at the then prevailing c.i.f. New York price for prompt shipment from the primary market stipulated in the contract. Contracts for all rubber that is free of allocation, in accordance with resolutions passed at the last meeting, if defaulted, shall be washed out at the maximum prices laid down by the War Trade Board.

	Spot.	June-Aug.	Sept.-Nov.
Para—Up-river fine lb.	68	64	..
Up-river medium	63	59	..
Up-river coarse	40	36	..
Caucho ball	40	36	..
Islands fine	59	57	..
Islands coarse	27	26	..
Cameta	28	27	..
Madeira fine	70	..	..
Ceylons-smoked sheets, ribbed	62	62	49
Smokers sheets, plain	60	60	48
First latex pale crepe	63	63	50½
Amber crepe	60	60	48
Clean brown crepe	58	58	46
Centrals—Corinto, prime	39	39	..
Esmeralda, prime	39	39	..
Mexican scrap	35	35	..
Balata sheets	97	..	..
Balata, block Panama	59	..	..
Guayule	35	35	..
Africans—Rio Nunez, string	55	..	..
Massai, red	55	..	..
East Indian Pontianak	15	..	..
Palembang	16	..	..

* Nominal.

Scrap Rubber

NEW YORK, June 10, 1918.

The situation is unchanged in the scrap rubber market. Business continues to be of a routine nature and prices have changed only slightly since our last report.

The following prices were paid for scrap rubber recently delivered at the reclaiming mill:

Boots and shoes	9¼ @ 9¾
Arctics, trimmed	6¾ @ 7
Arctics, untrimmed	5⅝ @ 6
Tires—Automobile	5¾ @ 6
Bicycles, pneumatic	5@ 5¼
Mixed hose	2@ 2¼
Air brake	5¾ @ ..
Inner tubes, No. 1	22¼ @ 23½
Inner tubes, No. 2	11½ @ 11¾
Inner tubes, red	11½ @ 11¾

THE ASKAM RUBBER CO.
MILFORD, CONN.
RECLAIMED RUBBER
ASKAM SPECIAL WIRE STOCK
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CRUDE RUBBER
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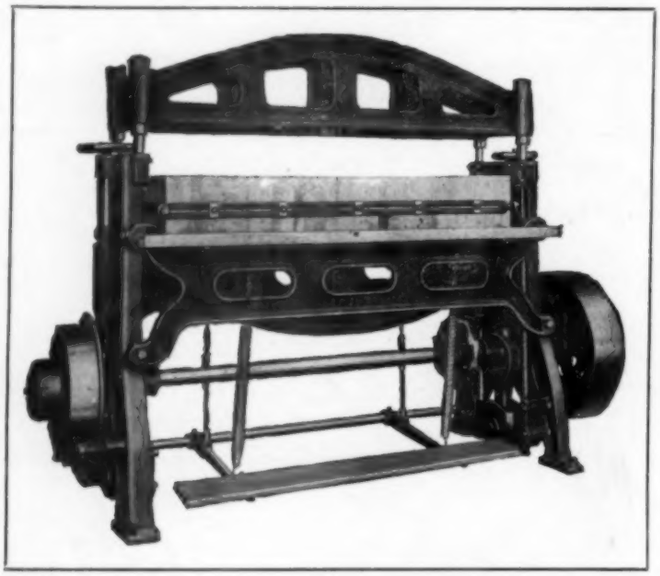
Importers and Traders Building 59-61 Pearl Street
NEW YORK

Gearless Sole-Cutting Machines



These machines are of a type that are being used very extensively in the different trades where dies are employed for cutting out parts from Leather, Rubber (cured and uncured), Rubberized Duck, Linings, Friction Cloth and all other materials used in the making of Canvas or Arctic footwear.

They are manufactured in several sizes and styles to meet the various requirements. Their construction is substantial and reliable throughout.

Further particulars and printed matter will be promptly furnished upon request.

UNITED SHOE MACHINERY CORPORATION
Albany Building *General Department* **BOSTON, MASS.**

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